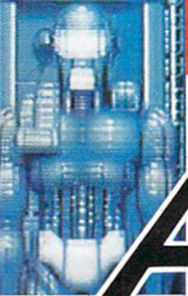


"LIBERATION"—BLOCKBUSTER HIT FOR CD32?—P.70

AMIGA WORLD

April 1994
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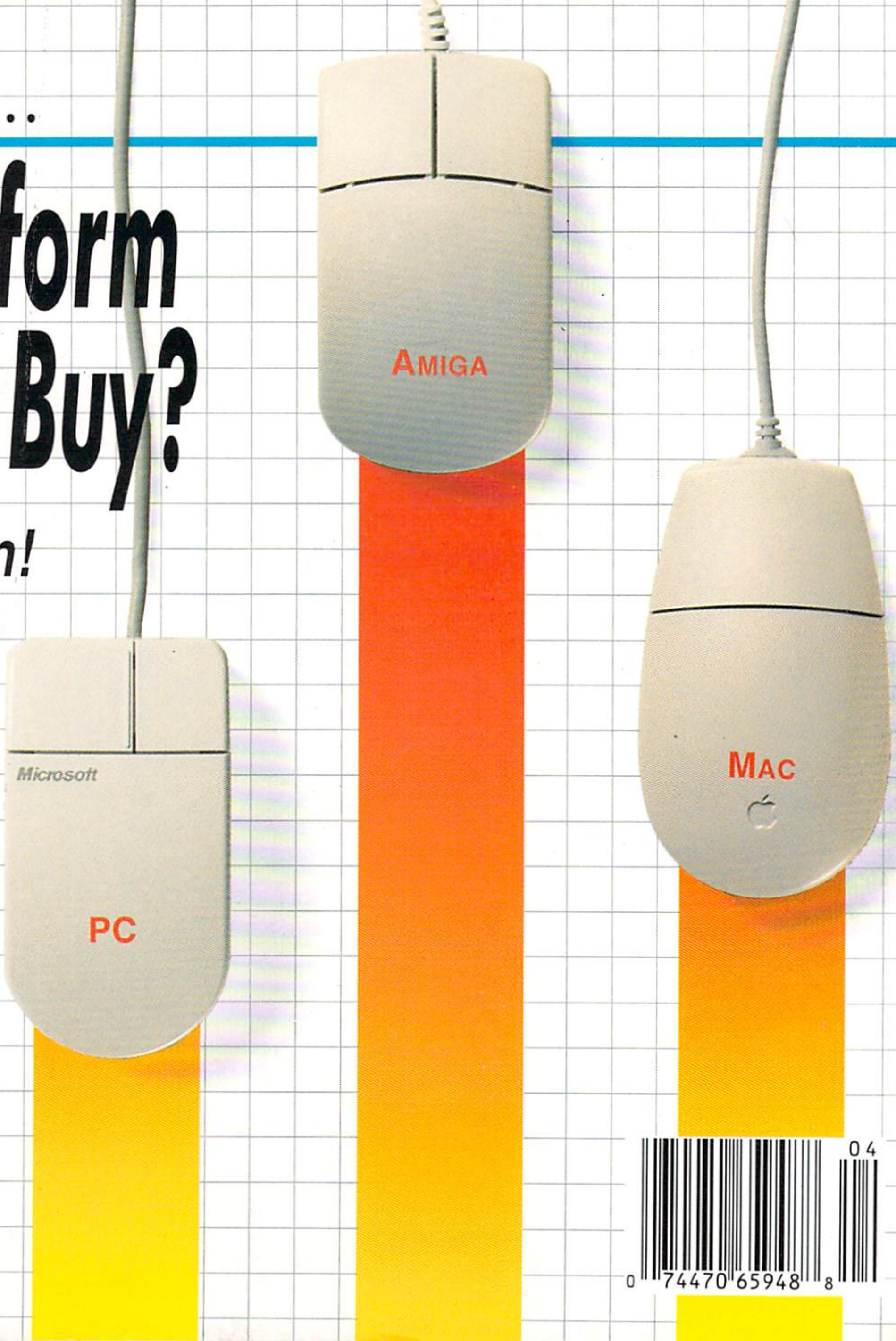
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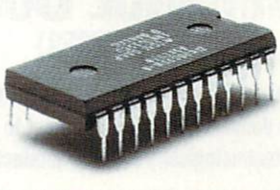
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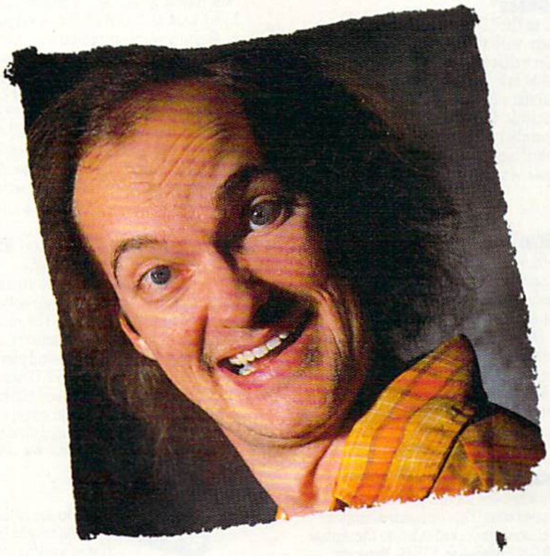
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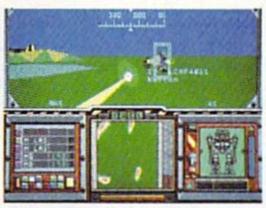


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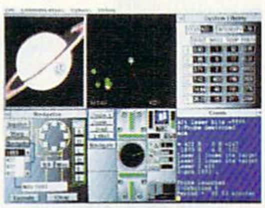
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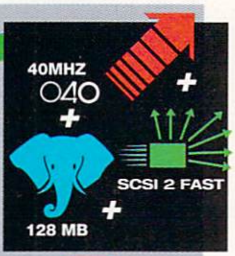
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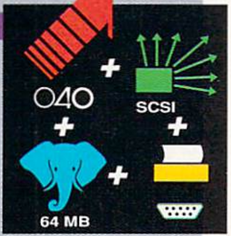
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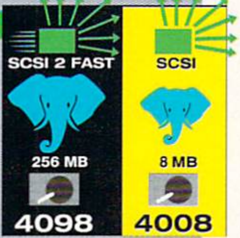


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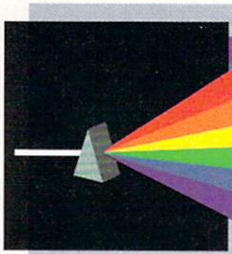


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CIRCLE **5** ON READER SERVICE CARD



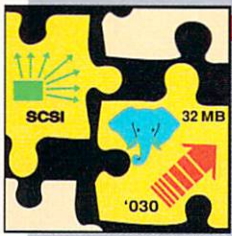
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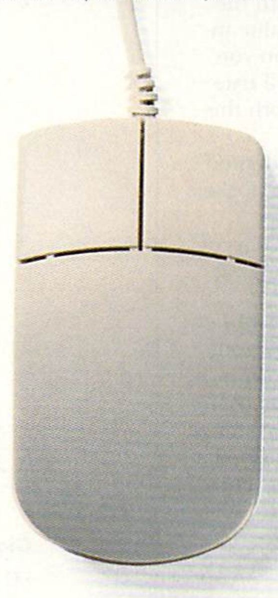
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CONTENTS

VOLUME 10, NUMBER 4, APRIL 1994

FEATURES

ARTICLES



*No, those mice on the cover are **not** blind—they're leading you straight to an inter-platform shopping comparison on p. 20 aimed at determining who's the big cheese when it comes to value for your dollar.*

COLUMNS

DEPARTMENTS

REVIEWS

GAMES

By Peter Olafson

COVER PHOTOGRAPH BY EDWARD JUDICE

EDITOR'S DRAWER

Wanna hear a secret? When you shop around for the best value in computing systems, the Amiga is at the top of the heap.

As an Amiga user, you're undoubtedly familiar with the following claim: The Amiga represents the best value in the computing market. That's probably one reason you purchased it in the first place. But is this claim still true in today's competitive market, where prices for both the PC and Mac platforms have tumbled?

To find out, we decided to sponsor an unprecedented computer shopping spree that would test the deep pockets of even the most avid techno-shopper. We set loose *AmigaWorld's* roving shopper, Dave Johnson, with tens of thousands of dollars in *AmigaWorld* play money bulging from his money belt.

The rules of this fantastic buying splurge were simple: Browse through your favorite computer megastore and purchase roughly similar computer systems—based on the Amiga, Mac, and PC—capable of performing some of the most popular computing tasks, including word and image processing, graphics and animation creation, multimedia presentation, and desktop publishing. See what system you can create for each of the platforms, and then compare the price tags.

AMIGA RULES!

Johnson is a knowledgeable computer user familiar with all three markets. He knows value. And, like you, when it comes to computer shopping, he's after the best bargain.

In terms of features, capabilities, and applications, the systems he chose are all roughly equivalent, and the Amiga compares favorably to the other two platforms. The big difference, however, is price.

If you're one of the approximately five million loyal Amiga owners, then this article confirms what you've known all along: The Amiga offers more bang for your computing buck. But, don't take my word for it. Turn to page 20 to see for yourself just what your hard-earned cash will buy. Devise your own comparative shopping spree and see if you don't arrive at comparable findings.

Since its introduction, the Amiga has been shunned by the general computer press and scorned by other (jealous?) system users. It's time for the Amiga to take its rightful place as a serious contender in the computing world. Far and away the price/performance leader, it warrants careful consideration from those searching for a new computer system.

Despite its lofty ranking, the Amiga isn't for everyone. It's the choice of champions, selected for its multitasking, quality graphics, and sound capability at a reasonable price. It's for those who are more concerned with results and what the computer can do than with brand names. The Amiga has speed, power, and capabilities found only in systems costing much more...and it's all wrapped up in an easy-to-use, flexible package. It's the best-kept secret in the computer industry.

Dennis Brisson
Editor-in-Chief

AmigaWorld

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OVERSCAN

News, New Products and Networks

CD32 ROLLOUT AT CES

LAS VEGAS—Commodore presented the US edition of its Amiga CD32 games console at the Consumer Electronics Show in early January along with an ambitious marketing plan and a promising report of its initial sales in Europe.

CD32 is expected to list for $399 when it becomes available in the US in late March. An MPEG add-on module, which gives the CD32 full-motion video capability, will be offered separately for $249. The module plugs into the large expansion port at the rear of the CD32, and enables the machine to play video and karaoke CDs.

The CD32 can play audio, CD+G, and CD+MIDI discs. Also, CBM claims that video CDs designed for Phillips' CD-I machine will work on MPEG-equipped CD32s. Software support for Kodak's PhotoCD format is planned for spring.

The machine is "very, very suitable for interactive TV," said Jeff Porter, CBM's director of advanced technology. Porter indicated that Commodore is talking to five major third-party hardware manufacturers about licensing CD32 technology for use in the set-top boxes that permit "navigating the ocean of information" available on interactive TV.

CBM reps said more than 100,000 machines have been sold in just three months in Europe and that CD32 has outpaced competing CD consoles by three-to-one.

Marketing the Machine

CBM aims to sell 300,000 to 500,000 CD32s in the US in 1994. Geoff Stilley, president and general manager of Commodore's US division, unveiled a wide-ranging promotions plan, including 30- and 45-second television commercials, exposure on home-shopping channels and talk shows, gaming challenges in high-traffic outlets, and a fan club offering discounts on software and hardware add-ons.

Stilley estimated that $10–15 million would be required to implement the plan. While he was unable to say how much of that CBM could actually provide, Stilley expressed confidence that the company—which took a financial beating in 1993—would have adequate funds to properly launch the CD32.

"All the resellers we're talking to are saying, 'Welcome back, we can't wait,'" Stilley said. Early on, the CD32 will be available in software stores at malls, with mass-merchandising outlets and toy stores to follow.

A US software bundle had not been finalized at press time, but was expected to include two to four game titles. CBM seems to be favoring 21st Century's Pinball Fantasies, Ocean's Sleepwalker, and Microcosm from Psygnosis. About 35 CD32-specific titles are currently available in Europe. About 85 are expected to be available in the US when the machine hits the streets. At press time, there were about 160 CD32 developers.

In addition, about 60 percent of the 110-plus titles for CDTV—CBM's initial, but less-than-successful foray into CD—are said to be CD32 compatible, and CBM has singled out 24 CDTV titles as especially worthy of the new machine.

Commodore's own publishing wing was slated to release five CD32 titles at the close of CES: Jim Sachs' Defender of the Crown II (see review, Dec. '93, p. 80), CD Football, Insight: Technology, and improved versions of the Grolier's Electronic Encyclopedia and the Guinness Book of World Records.

CD32 titles typically list for $45 to $50, and sell for $5 to $10 less on the street. There's also the prospect that CD32 games will be available for rental (and the unit itself for sale) in video stores. CBM indicated it is talking to several of the larger video-store chains, who say they are "very interested" in the CD32.

Hooking It Up

Add-ons may be in the works, as well. The compact unit can be connected to a TV with the included RF modulator cable; it also supports S-Video and composite displays (which also permits use of monitors like the 1084S). However, the machine does not currently offer an RGB port or permit direct connection of other Amiga peripherals.

Continued on p. 8

FASTER "O-FORTY"

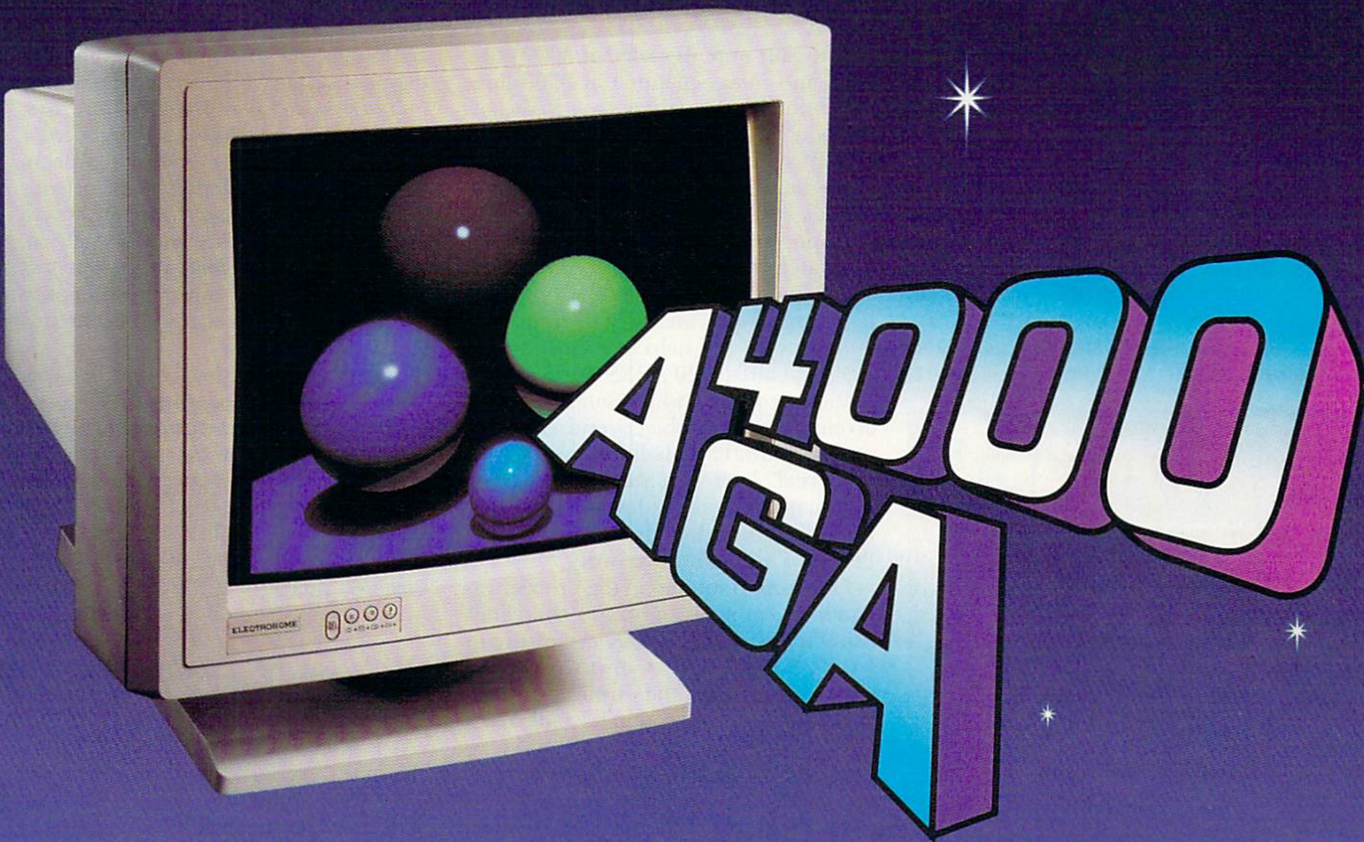
Without even using a Zorro slot, you can now boost your A3000 or A4000's processing speed, and add RAM and a SCSI-2 controller!

The **Warp Engine** ***(MacroSystemUS)*** offers '040 acceleration at 28, 33, or 40 MHz. The 33 and 40 MHz versions of the board ($1599.95 and 1899.95, respectively) provide an '040 processor, while the 28 MHz model ($899.95) offers a socket for the chip. This means A4000/040 owners can simply transfer the processor on their motherboard to the 28 MHz Warp Engine card. Also, According to MacroSystem, you can also realize a RAM speed increase by transferring the memory chips from your motherboard to the Warp Engine. The board's four SIMM sockets allow you to mix RAM module sizes—or you can go with 32MB SIMMs for a total of 128MB on the A4000 version; the A3000 model accepts a maximum of 64MB RAM. During SCSI data transfers, the board will reportedly leave the Amiga's CPU 90% free. (RS# 120.)

Don't let its name fool you—the **A4000 G-Force 040-40** may have been developed for the A4000, but it also functions in A3000-series machines. ***GVP's*** fastest accelerator ever features a 40 MHz Motorola '040 processor. The main board holds up to 32MB of RAM, and a daughterboard accommodates another 96MB, giving you up to 128 megabytes. Another optional module provides the SCSI-2 connector. (RS# 121.)

Both boards promise a SCSI transfer rate of up to 10MB per second!

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 90.



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Computer Cafe's "Can-a-mation"

Imagine throwing open your refrigerator door to discover a wild party of soda cans twirling and twisting to a Chubby Checker beat.

Or, instead of imagining it, check out the new Diet Shasta ad campaign for yourself on TV. If your wondering who's throwing this party, give credit to David Ebner, Tom Williamson, and Jeff Barnes of Computer Cafe ("Animation Without the Attitude") in Santa Maria, California, who conceived and produced the colorful 3-D animation on Amigas.

"To make the greatest impact," said Shasta's marketing agency, West Beach



Have you ever seen a soda can do the limbo? Well, one does (with the help of LightWave 3D) in the latest TV ad for Diet Shasta.

Marketing, "we needed something unique. We felt going fully animated with fun sound effects and exciting music would give us a breakthrough spot that people will remember."

Faced with such a tall order and tight deadlines, Computer Cafe chose a nontraditional way of outsourcing the work to freelance animators from all over the country—the team transmitted scenes and test animations via modem. Computer Cafe worked with Jim Arthur in Colorado Springs on the animation, received rendering assistance from Mark Miller in San Diego, and programming help from Jon Tindall in Detroit. The animators used two NewTek Video Toaster cards, LightRave (LightWave emulation software), three '040 accelerated Amiga 2000s, one A4000, and an '040-based A3000.

The cans were modeled at 3000 polygons and image-mapped at 3300 lines resolution for the tighter shots in the animation. Movement was achieved with LightWave's Layout, and then shaped and enhanced with the Bones function.

Soda spray bursting from the cans as they popped their tops was rendered separately and blurred with ASDG's Art Department Professional. Blasts of confetti were layered on top of the rendered end tag with the help of a custom version of Tindall's SPARKS Particle Animation program, which builds clusters around modeled objects and creates a motion path. Party balloons were given that "real" look with a rendered reflection map. After all the finishing touches, Ebner output all of the shots to DPS's Personal Animation Recorder.

One important step in the process was communicating progress to the client using the WireFrame Preview feature in LightWave. "The Computer Cafe showed us tapes of the wireframe movements as they went along," said Mark Owens of West Beach Marketing, "so we could see how the concept was progressing before the renderings. It was fascinating, and it gives a client on any budget greater comfort to see some of the work in progress."

Computer Cafe and company produced the full 30-second spot—fade up to fade down—without ever touching tape until delivery for the sound mix. In just 18 days the team completed a 15-second 3-D animated spot for the New Year's weekend Freedom Bowl telecast and then completed a full 30-second spot for the upcoming TV campaign.

Additionally, a single frame from the animation was rendered at print resolution, then sent via modem to Shasta's art director for billboard advertising.

Certainly, a toast should go to the Amiga, which was essential for on-the-fly production and for churning out impressive animation in record time on a (diet) slim budget.

—Patric Hedlund

Express Lane

With the **V-LAN Express** single-device frame-accurate video controller ($795, ***Videomedia***), you can bypass the "traffic jams" caused by interruptions from other VTRs on a multiple-device network. This pocket-size dedicated controller does not require a V-LAN transmitter or connect to a network of VTRs. It attatches to your serial port and comes with Amiga driver software for any RS-232/422 and VISCA-compatible videotape, videodisc, and digital disk recorder that supports the V-LAN standard developed by Videomedia (RS# 123). (IBM and Mac disks are also available.)

"CD32"—From p. 8

But don't rule this out. A half-dozen third-party hardware manufacturers have contacted CBM about making add-ons for the new system. Products contemplated include extra memory, accelerators, floppy drives, and an expansion board—similar to the one made available to developers by Commodore—that includes a range of ports for hard and floppy drives and RGB monitors. Were it to catch on, such a device could relieve developers of the current storage constraints imposed by the 1K of nonvolatile RAM CD32 uses to store saved games.

The machine's two joyports are compatible with existing Amiga mouse devices and joysticks. As with previous AGA machines, you can access PAL mode and earlier incarnations of the custom chip set by holding down both mouse buttons at boot. These options may be useful for running older CDTV programs or titles designed for the European version of CD32.

—Peter Olafson

Time for Taxes

It's that time of year again and ***Oxxi*** has updated **TaxBreak** ($79.95) with the latest tax forms and schedules for 1993. Simply enter your figures and TaxBreak automatically calculates tax refunds and payments onto a ready-to-print form . If you get stuck on a particular line, you can access specific instructions from the IRS via the Help key. Current owners can upgrade for $29.95. (RS# 127.)

Still & Sample

VideoMaster from ***Oregon Research*** is a video digitizer and audio sampler rolled into one. It is available for both the Amiga 500 or 600 ($109.95) and Amiga 1200 ($119.95). With the hardware/software combo, you can sample full-screen color stills from video cameras and camcorders. (If you want to lift color stills from video recorders or laser-disc players, you will also need an electronic color splitter.) You can sample quarter-screen monochrome video clips (of up to 30 frames per second) to play back on your Amiga. You can also sample eight-bit sound. VideoMaster includes a video sequencer so you can create multimedia sequences with the video and sound samples.

ColorMaster (sold separately) is an automatic RGB color filter for VideoMaster that plugs into the Amiga's parallel port. (RS# 125.)

Mission to Mandelbrot

Dare to explore mysterious fractal regions using your Amiga? You won't even need a map. With **Mand2000's** ($34.95, ***Cygnus Software***) animated zoom and pan features, you can explore the Mandelbrot and Julia sets and other fractals via an intuitive point-and-click interface (you can even use a joystick to "drive" through fractals). With the Show Location feature, you can find out where you are just in case you do get lost.

Since Mand2000 supports ARexx (a dozen scripts are included), you can create animations (zoom, morph, iteration, and Julia seed movies) automatically with the help of a program such as ADPro. Multiple windows, a multi-level "undo" feature, full AGA support, and speed make Mand2000 a state-of-the art program. (RS# 122.)



You can travel to fractal "worlds" with Mand2000.

Driving Big Floppies

You can store twice as much data on high-density floppies than on standard ones. The question is, How do you access them? ***DKB*** (RS# 130) provides an answer, now that it distributes the **1.76MB high-density floppy drive** from Power Computing of Scotland. With the drive, you can even read and write 1.44MB-format PC floppy disks—with the help of Consultron's CrossDOS emulation software (included with AmigaDOS 2.1 and later), which is now bundled with CrossPC. External ($175) and internal ($170) versions are available. The external drive works with any Amiga running Kickstart 2.04 or later; the internal model requires that you have an A2000, A3000, A600, or an AGA Amiga (A4000 or A1200).



ON-LINE SCAN

By Tim Walsh

Much to the chagrin of those who must sit in proximity to me, I love Amiga-generated music. It doesn't matter whether it's 8- or 16-bit, Bach or Biohazard; any sound that drowns the din of my computer's and laser printer's cooling fans is good music in my book. And the pickings on line have never been better, I might add.

On-line music files evolve so rapidly, I couldn't conceivably evaluate more than a fraction of them each month. The network with the most Amiga-specific music files is GEnie, which offers page after page of great ones. Portal is a close second, while CompuServe's Amiga Arts forum offers significantly less.

Face the Music

The list of hardware needed to play music on your Amiga is thankfully short. The Amiga's built-in music capabilities are superb, though decidedly tame when compared to the output of even the lowliest 16-bit sound cards. A monitor with stereo speakers—such as a 1084S or 1942—reproduces music in a pinch. But a stereo receiver or boombox with some small speakers is a definite plus (connect your Amiga's audio outputs to the auxiliary input on your sound machine via phono cable).

There's a variety of music formats, the most common being NoiseTracker and MusicTracker. These so-called Music Modules (MODs) have even found their way to other computer platforms in recent years. MED (Music Editor) files, have slacked a bit in popularity, but new ones still appear.

MIDI and Deluxe Music Construction Set (DMCS) files don't seem quite as popular as they once were. Stand-alone music files and digitized sound files that don't require a separate player program have fallen out of favor over the years, too. Exotic Ripper 1.27 by Rene (Turbo) Trolldenier has seen a lot of interest in recent months as nonmusicians often use it to "rip" sections from other MODs for use in their own.

Fledglings interested in hearing some great Amiga MODs should begin by getting a good, multiformat player. A long-time favorite of mine is Ed Mackey's Edplayer 2.1. It places a black CD player faceplate on your AmigaDOS 2.0 or higher Workbench screen, complete with most of the CD controls you're already familiar with, and offers MIDI support.

Another one is Stephan Fuhrmann's PowerPlayer, a freeware German import that supports roughly 15 different music formats (this is remarkable, considering the executable is only about 43K in size). Another Euro import, PowerTracker, by Wai Hung Liu, is an even smaller (31K) multiformat player that complements PowerPlayer nicely. Once your music collection grows, you'll have formats that won't play on PowerPlayer, but will play on PowerTracker, and vice versa.

Another older, all-purpose MED player and composition package is MED 3.2 by Teijo Kinnunen. Although it hasn't been updated in about two years, it remains quite popular. Its compact size, ease-of-use, and great documentation make it a favorite for composing everything from dance songs to game music. Much like a MIDI file (the instruments remain separate from the program), MED is remarkably efficient. Functional demos of the commercial program OctaMED, an offshoot of MED, have also seen an increase in popularity. OctaMED's most redeeming quality is its ability to split the Amiga's audio channels.

Some Pick Hits

Let's take a look at some hot MOD files of the last 12 months found on most nets. One of the more dynamic files I enjoyed greatly was Guitarslinger. For flashy techno-dance music, an impressive MOD called Nicole comes complete with digitized vocals. If you grew up in the '70s, you might get a kick out of a MOD called Money, which is loosely based on the Pink Floyd classic. I say "loosely" because it starts off with an accurate rendition of the cash register, but segues into what's best described as elevator music.

The next time you have friends over, put on Electric-Funk from a person who goes by the name Moby. It won a prestigious international music competition, and while it breaks no new musical ground, it's funky electric guitar at its best.

The next rising star of the music world may be composing MODs and MEDs on an Amiga right now, and uploading them to the nets in the hope of getting recognition. Just think of the "I knew so-and-so when" stories you can tell your kids. So, what are you waiting for?□

BIX
800/695-4882
617/354-4137

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800/848-8199

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GEnie
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Portal
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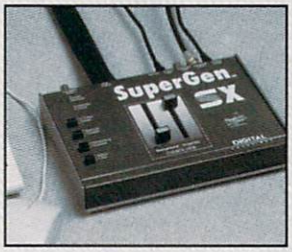
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With products that are "video slot masters" such as the Video Toaster or a genlock, only one of them can be active at a time. The video slot box allows you to easily switch instantly between several such products within one machine without having to ever swap boards.

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The Reviews are in...

"The program is so fast and flexible that it makes its Amiga predecessors feel like the old Doodle! program on the Commodore 64. Nothing out there can match its feature set, and it's the one paint program I've used that's so fast that it never gets in the way of your creativity."
Amiga Computing, October 1993 (UK)

"Brilliance is now — leaving DPaint trailing in its wake — the best art package available for the Amiga. It's very hard to express why I'm so taken by Brilliance, there's just a feeling of 'rightness' about the way that it works."
C U Amiga, October 1993 (UK)

BLUE CHIP AWARD

ADU APPROVED

"Excellent! Brilliance is loaded with useful drawing and animation features, but it's not just the sheer number of tools on offer that impresses. Two other big points arise. First, the program is very easy to use, thanks to its intuitive, flexible and well thought-out panel system. The second major factor is Brilliance's speed. Even in HAM-8 mode, everything zips along beautifully quickly."
Amiga Format, October 1993 (UK)

"Brilliance is user friendly, doing an excellent job with nearly every function and option that it offers... "
AmigaWorld, December 1993 (USA)

"It is solid as a rock. Never have I known a first version of any program stand up like this or be so perfectly polished."
Amiga Shopper, December 1993 (UK)

"For many years, DPaint ruled the roost when it came to supplying incredible graphics power at an affordable price, but no longer. Brilliance has assumed centre stage and is now the Amiga's number one art package."
C U Amiga, January 1994 (UK)

"After using Brilliance for just a couple of days, I'm hooked. It is the only package to be released for the Amiga which can rival DeluxePaint for animation capabilities, and it is a class act."
Amiga Down Under Nov/Dec 1993 (New Zealand)

"It took a while, but Deluxe Paint IV has finally met its match. If you're looking for the best AGA paint program on the Amiga, look no further than Brilliance."
Amazing Computing, November 1993 (USA)

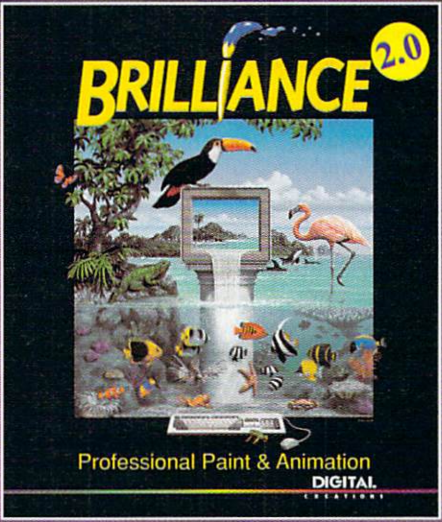
...Brilliance kicked Tut's Butt!



COMPARE! Deluxe Paint IV *Vs.* Brilliance

	Deluxe Paint IV	Brilliance
Overall Speed	Slow	Fast
Picture Size Limited By:		
Chip RAM	Yes	No
Total RAM	N/A	Yes
Number of Brushes		29
Number of Anim Brushes	2	9
Number of Screens	2	Lots*
Levels of Undo	1	Lots*
Levels of Redo	1	Lots*
Load/Save Paths	Yes	Yes
Flip Frames	No	Yes
Realtime Preview Mode	No	Yes
Full Screen HAM Gradient Fill	Slow	Fast
Max # of Colors Gradient Fill	16	30,000
True 24 Bit Editing	No	Yes
Load DCTV Pics as HAM	No	Yes
Max Animation Speed	30fps	99fps
Ground-up Design for AGA	No	Yes

* Limited only by total RAM



ANNOUNCING VERSION 2.0

Version 2.0 of Brilliance has been designed with productivty in mind. Several new features enhance this already powerful program. Features like *Flip Frames* that allows the animator to flip through drawings. *Rub Thru* that make compositing easier. *Load and Save Tween paths* enabling much longer and repeatable brush moves. Faster and more accurate Tweening. *True View* option for magnification. And much, much more.

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R E V I E

EGS 28/24 Spectrum

EGS-compatible, 24-bit high-resolution display card.

Great Valley Products, **$499 (1MB); $599 (2MB); $149 (1MB upgrade) A2000/3000/4000.**
Accelerator compatible.
Minimum system: **Hard drive, 2MB RAM.**
Recommended system: **A4000, large multiscan monitor, accelerator.**

Over the last twelve months or so, Amiga video-display boards have transformed themselves from press-release vaporware into hardware reality. For a different twist on a common theme, GVP is hoping that the Enhanced Graphics System (EGS) will get a foothold in 24-bit graphics and let its EGS 28/24 Spectrum stand apart from the crowd. EGS represents retargettable graphics (RTG) for the Amiga, and software designed around the EGS concept should run on the Spectrum or any other EGS-compatible board. Commodore's own brand of RTG is still some time away, so GVP is in the enviable position of having a living, working retargettable graphics system you can buy right now.

Spectrum Specs

The Spectrum board and its accompanying five disks of software install quickly. The board slides into any Zorro II or III slot, and two external video ports grace the board's backside. Your monitor plugs into the output port, while the second port accepts the signal from the Amiga's video output. The Spectrum board passes the normal Amiga signals directly to your monitor, obviating any need for the second monitor that older display cards required. However, with more than one Spectrum card installed, a Macintosh-like single display can overlap multiple monitors.

The software includes one thoughtful "emergency" boot disk that allows you to boot back into a native Amiga mode if you find yourself without an EGS-compatible monitor. If you have an Amiga 4000 that suffers from the well-publicized Zorro III bug, the Spectrum will still operate—albeit in the slower Zorro II mode—after you change the position of a single jumper.

A well-appointed monitor driver editor is included, but its use is best left to experts. Fiddling with it can be dangerous (one bad signal can ruin a perfectly good monitor), and there's really no need to write your own. The EGS software includes drivers for Commodore monitors as well as VESA, VGA, and S-VGA spec monitors.

Once the software is installed, you may run the Workbench in normal Amiga resolutions or in any screen mode allowed by the Spectrum board, which goes as high as 1600x1280 with as many as 256 colors. In practice, you probably won't exceed 1024x768, after which the resolutions are interlaced. Unlike other display boards, the Spectrum displays a 256-color Workbench even if you aren't using AmigaDOS 3.0. I found Workbench screens of more than 32 colors unacceptably slow on my A3000, though my 4000's Workbench remained peppy even at 256 colors. Don't spend time on the Workbench, though; the real magic is found in the custom EGS environment.

The Soul of EGS

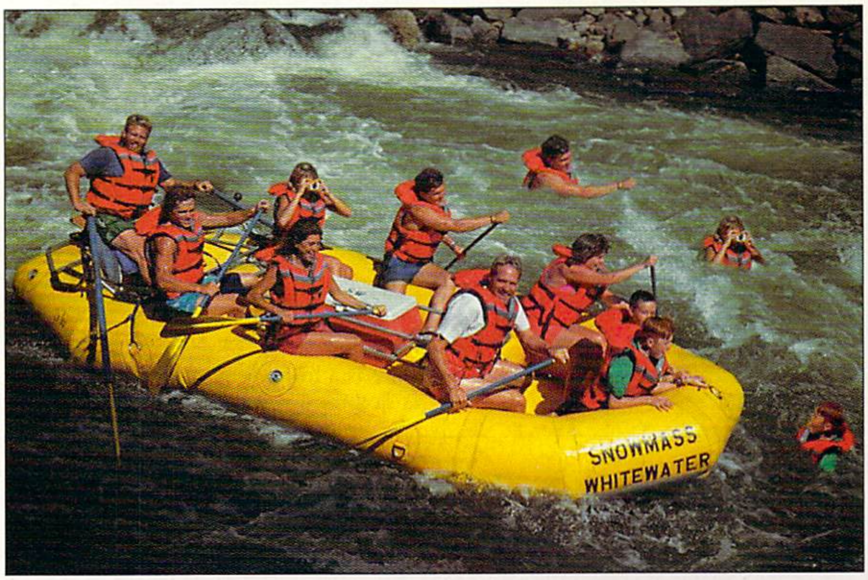
To whet your EGS appetite, Spectrum ships with a dozen or so utilities and mini-applications, including a ray-tracing 3-D equation plotter, a screen grabber, and various configuration programs. EGS-SpectraPaint, EGS's flagship application to date, completes the package.

Spectrum's EGS environment resembles an attractive cross between Workbench and Windows. EGS performs best when all applications open in windows that share the same EGS screen, much like having all your Amiga programs open and run on one Workbench screen. This is logical, since an EGS screen is likely to be large enough (800x600 minimum) to display several programs simultaneously. Besides, using more than one custom EGS screen would consume most of your chip RAM before you've opened even a single program.

EGS has its own set of modular Preferences and a standard library of requesters and interface objects. One of its most useful surprises is the ability to pull commonly used menus off the title-

To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 90.

WS



bar and leave them out in the thick of things for quick access.

Of course, you'll need to be able to launch programs from the EGS screen, so an EGS-specific dock program is included. EGS-Dock is designed to let you run applications from groups of buttons or icons. To my dismay, however, it behaved unpredictably on both of my systems, failing to run at all about half of the time I booted. Another drawback is that although it's very configurable, you can edit it only from an anachronistic script file.

Power Paintbrush

The decision to buy a display card shouldn't hinge on the capabilities of its accompanying paint program, but EGS-SpectraPaint is unquestionably the Spectrum's strongest selling point. Workstation-environment 24-bit painting is rare in Amiga software, but that's what SpectraPaint delivers when you're editing 24-bit images—and it's remarkably easy to use. The program's toolbox is both draggable and resizable, and any or all of the menus can be torn off the titlebar and positioned for quick access.

EGS-SpectraPaint's most flashy feature is the area-selection tool. Called a "magic wand," it uses a controllable threshold setting to determine how many hues around the selected color should be included in a region. The program boasts the ability to load any number of images, memory permitting, and to have up to four active views of the same image, each at a different magnification.

In terms of memory, EGS-SpectraPaint (like the entire EGS software lineup) works well with the virtual-memory manager, GigaMem (INOVAtronics). On the other hand, EGS is sadly lacking in animation capabilities. If the next version supports 8- or 24-bit animation, there'll be cause for celebration.

In spite of its versatility and power, EGS-SpectraPaint is not the ultimate paint program. It does a few things very well, like pantogram, stencil, and thresholds, but it is not a full-featured paint program. A typical working relationship would be to use it in conjunction with an image-processing program, such as GVP's own ImageFX. Watch for a greatly enhanced version in a few months.



While the EGS 28/24 Spectrum's SpectraPaint displays with unmatched clarity (top), its ability to also manipulate and move 24-bit graphics clips (bottom) is one its true strengths.

Life Beyond EGS

Do your homework before choosing a 24-bit display card. Shop around carefully, read all the reviews and specs, and talk to the experts. Some cards, like the Picasso II (Expert Services) and Retina (MacroSystemUS), effortlessly tweak your Amiga into displaying some software at resolutions far beyond their intended limits, such as creating 1280x1024 Final Copy screens. Spectrum isn't designed to do this sort of thing; while it "promotes" the Workbench to a high resolution, it needs EGS-specific software for use in its native environment.

A decision to buy Spectrum, then, is a vote for EGS and an investment in the future of Amiga graphics. Although it will not force some existing programs to run at high resolution, the Spectrum is an elegantly designed device that does everything it claims. The board's potential leaves me optimistic about a future brimming with EGS applications. If you're ready for a new-generation Amiga display adapter, I recommended this one highly.

—Dave Johnson ►

TOASTER TOOLKIT 4000

DevWare, $179.95

Multifunction utility package for the Video Toaster.

All Video Toaster-equipped Amigas.
2.0/3.0 compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.

Minimum system: Toaster-equipped Amiga.
Recommended system: 4MB RAM, AGA Amiga, and hard disk.

When an animal or a plant becomes extinct, it's gone. Computer software is a little different. A case in point is Toaster Toolkit, one of the first accessory programs developed for the Video Toaster. Some time ago, the program vanished from sight, then made a remarkable comeback, completely revised and renamed for the Toaster 4000. Although the product is under a new license agreement, distributor DevWare allows registered owners of the original package to upgrade for $79.95.

SIX TOASTER TASKS

The Toaster Toolkit 4000 offers six separate programs: Toaster Sequence Editor, Toaster Project Editor, AnimFX, FXToAnim, FrameStore Compressor, and a ColorFont Converter. The most significant of these is the Toaster Sequence Editor, which is used to compile a script of Toaster commands. Run the compiled script, and the commands are executed in sequence, as if you had manually clicked the Toaster Switcher's buttons. This process works thanks to the Toaster Switcher's ARexx interface, which accepts commands from the Toaster Toolkit. The Sequence Editor also lessens further potential drudgery by recording your mouse clicks and converting them to a script of standard ARexx commands, or in a proprietary compressed format.

The Sequence Editor's control screen resembles the Toaster Switcher's. The top half of the screen displays one of the banks of Toaster effects, while the bottom half has buttons for banks and effect speed, control of the T-bar position, inputs for the Overlay, Program (Main) and Preview outputs, and buttons to perform Take or Automatic transitions. A scrolling list window shows the sequence of selected commands and offers buttons that allow you to load, edit, or run a script.

Some controls make short work of tasks that would be difficult under manual control. You can specify a duration for repetitive effects, like "falling snow" and "old film." A "loop" button repeats commands for either a designated number of times or for a measured amount of time. The Slideshow button lets you select a series of Framestores to display and the effects to display between these "slides."

There's also an Out button that lets you output text, speech, ARexx commands, or serial-port commands as part of the script execution. This button also lets you control external devices such as the DPS TBC III, Prime Image's TBC, Selectra Vu-Port controller for Panasonic AG-1960 VCRs, and the BCD single-frame controller. This scant list of supported devices can easily be

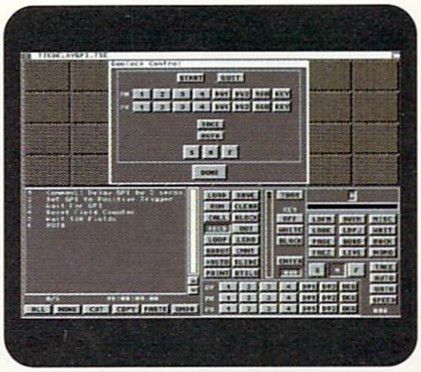
augmented with your own external-device definitions.

Next in Sequence

The Toaster Project Editor is designed to let you choose the presentation order of effects on each panel and select both their default speed and color (for effects that use a background or border color). It also lets you build a catalog of effects and print a list showing which effect corresponds to which effect filename. Its best feature, the "MacroFX" button, lets you build a "macro" effect button to run a program or execute scripts from AmigaDOS, ARexx, or the Sequence Editor.

With a little creativity, the MacroFX button can add effect icons that display a slideshow, control the strobe feature on your TBC, or perhaps capture a series of frames and automatically save them to the hard drive. Toaster Toolkit 4000 is the only program I've seen that allows you to launch scripts directly from the Toaster screen, using a regular Toaster effect icon.

In addition to MacroFX, Toaster Toolkit also lets you create more conventional animated wipe effects, using its AnimFX program. To create an effect, you must first create an animation with a paint program like DeluxePaint or Brilliance, using one of the supplied animation templates. The AnimFX program lets you convert this animation to an effect, add an icon image, and even add a sound-effects file. There is also an FX-to-ANIM converter program, which converts animated Toaster effects back into animation files. This program won't work on all effects (AGA animations use a proprietary NewTek formula), but it will convert many of them. It even converts the sounds associated with an effect to an IFF 8SVX sound file. As of this writing, no other program lets you assemble or disassemble effects with accompanying sounds.



Toaster Sequence Editor.

Two For 2.0

Framestore Compressor and the ColorFont Converter are also included. The Framestore Compressor converts Framestore files from the old storage format to the new one, which reduces their size by 50%. A selectable Snoop mode watches for the creation of new Framestore files, and then compresses them automatically.

The ColorFont converter program converts 32- or 64-color image clips (up to 280X160 pixels in size) into characters in a Toaster ColorFont. You simply create an image clip, or "brush," for each character, and save it under a filename ending in the ASCII code for the letter it represents. You enter the filenames in the ColorFont program, and the files are converted into a font. While both the ►

Framestore and ColorFont converters are wonderful additions for Toaster 2.0 owners, Toaster 4000 and Toaster 3.0 software already saves Framestores in the compressed format. In addition, it can incorporate graphics clips directly into Character Generator pages, making it easy to add a logo to a title page without creating a ColorFont.

Rough Edges

As good as the Toaster Toolkit 4000 is, there's room for improvement. The Sequence Editor needs refinement, as there's no way to edit a script line. Enter the wrong Framestore number, and you've got to delete that line and insert the correct one. Direct support for the new Toaster status commands is missing, too. A "background" button lets you set the background channel to any of 4096 colors, but the colors are represented by meaningless numbers. Also, if the Toaster-effect icons were smaller, the command buttons could be larger.

Toaster Toolkit 4000 competes against a number of products, such as T-Rexx Professional, ToasterVision, and the Deli, all of which have roughly similar attributes. Toaster Toolkit 4000 offers some unmatched features, such as the ability to launch a script from a Toaster-effect icon, provide effects with audio accompaniment, and create ColorFonts. Its capabilities also straddle all versions of the Toaster. These unique characteristics, along with the program's intermediate price, make it an intelligent investment for the Toaster owner who wants to customize, automate and simplify many Toaster tasks.

—Sheldon Leemon

VideoScan Genlock VS-525N (NTSC version)

CompuVid, $1275; optional power, $70

All Amigas.
1.3/2.0/3.0 compatible.
Hard-drive installable.
Accelerator compatible.
Installation: Easy.
***Minimum system:* A500, VCR or camcorder, video applications software.**
***Recommended system:* A2000 or better; waveform monitor and vectorscope for video signal adjustments; time-based corrector.**

Multifunction external genlock.

VideoScan, the newest fraternity member of Amiga video genlocks, is an external device that performs dissolves and simple wipes and can be used for cut switching on the vertical interval. What sets it apart from the genlocking crowd is that it can work as a stand-alone mixer for two synchronized video sources. With the change of a jumper, you can also connect it via the RGB port to an Amiga, even one that already has an internal genlock. Thus connected, it loops the RGB signal to your monitor.

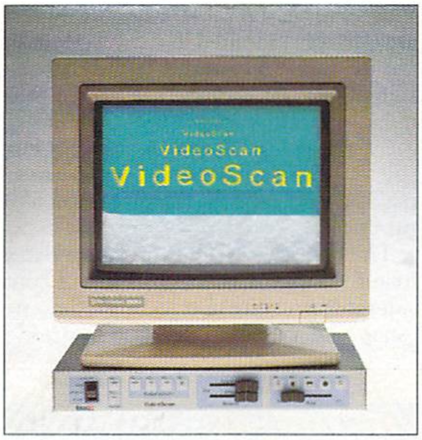
The slim, sturdy unit is designed to sit atop the A2000/3000/4000 case, and it easily supports a monitor. It draws power from the Amiga or from an optional external power supply, a feature A500 owners will no doubt find comforting, and one that effectively makes the Amiga a peripheral device.

I/O Options

VideoScan has both composite and Y/C

(S-VHS, ED-BETA or Hi8) input and output. Its two inputs and its output ports all have BNC and S-VHS style DIN connectors. Both 23-pin and 15-pin DB connectors accommodate Amiga RGB and multisync monitors. Except when in Video Mixer Mode, VideoScan can provide simultaneous composite and Y/C output. A BNC connector gives you Key signal I/O, with the input or output option selected by a dip switch. Three other dip switches allow 75-ohm termination of the inputs.

The front panel provides two dissolve sliders and an effects slider for wipes, which include horizontal, vertical and circular, or any combination of the three, plus inverted. The duration of wipes range from two to seven seconds, and wipes can be performed either manually or with the auto-wipe button. Also provided are adjustments for horizontal position and subcarrier phase shift up to 180 degrees. VideoScan's built-in black signal seems to be zero IRE, an indication of the product's European PAL heritage. While there's no mention made in the scant documentation, technically inclined users can open the case



Genlocking with VideoScan.

and turn potentiometer RV-18 until the signal reads 7.5 IRE (for NTSC), using a waveform monitor.

MIXERS, ANYONE?

Four buttons let you choose the video sources and mixing modes and also double as vertical interval switches for cuts. Two more buttons select either composite or S-VHS format. You can easily mix Amiga graphics with any stable video source, such as a camera or time-base-corrected videotape. When using a second genlockable video source (camera, video disc, or a TBCed videotape), you can mix between two video sources, Amiga graphics and a black signal. Of course, you can mix only two at a time, and certain combinations are not available.

In Video Mixer Mode you can dissolve, wipe, or both, between video sources 1 and 2 and black. In Reference Mode, dissolves (but no wipes) are available between non-keyed Amiga graphics, source 1, and black. Dissolves or wipes in Key Mode (selectable by a rear-mounted switch) are performed from source 1 to keyed Amiga graphics, or dissolves only are performed from source 1 or unkeyed graphics to black. Finally, Amiga Mode lets you perform dissolves and/or wipes from unkeyed graphics to source 1, but you can perform only dissolves (no wipes) from graphics or source 1 to black.

A logical pattern develops as follows: You can mix source 1 and black with either Amiga graphics or source 2, but ►

not with both. Amiga graphics and source 2 cannot be mixed with one another at all. While this is not exactly the same as having a three-input mixer, it makes ample provision for creativity.

TROUBLED TUNERS

VideoScan's cabinet design uses sliders and buttons on the front panel. (The more popular flat-cabinet design, with sliders and buttons on the top like a video-switcher panel, does offer better ergonomics for extended periods, but VideoScan is stackable, whereas mixers are typically mounted in video consoles.) On the unit I received, I found that the sliders were not properly set, as the left-most and rightmost thirds of their movement ranges produced no effect. Only the middle thirds were responsive, making slow, smooth dissolves a pain to produce.

The bubble-panel buttons were also a major disappointment. In spite of considerable pressure and feeling a definite "snap" each time, I often had to press a button from two to four times to activate a function. Save for the LED indicator next to each button, there was no indication whether or not a function was activated. The company is in the process of addressing this problem through better button design.

More surprises awaited when I opened the cabinet to change a jumper. I discovered four Dual In-line Pin "DIP" chips that were almost obscured with transistors, fixed and variable resistors, capacitors, and jumper wires, all soldered to the legs of the chips. It doesn't take an advanced degree in electronics to recognize a patch job when you see one.

TO BUY OR NOT TO BUY?

VideoScan's good features outweigh its shortcomings, however. The external power option is a nice touch, and the genlock's stand-alone mixer design is a capital idea that makes for a flexible and functional unit. You can use it upstream or downstream of a Video Toaster or other genlock, providing expanded studio capabilities. The front-panel layout is logical, and the blue-and-gray cabinet blends nicely with other equipment.

Although experienced users will find the abbreviated manual lacking in technical details, it is easy to understand. Beginning videographers should be able to follow the step-by-step instruction format and accompanying diagrams with little difficulty. Two pages full of video terms with definitions should also be of help to beginners. The manual did make one unfulfilled promise by specifying that a demo disk and S-VHS cable were "supplied." At least, these did not come with the unit I received.

The real test of a genlock is its image quality, and I was very pleased by the visual quality of the VideoScan output, which appears equal to or better than the SuperGen. Chroma crawl was minimal, and color bleed and rainbows were nonexistent in composite. The S-VHS output should be even better than the composite.

At its steep list price, the feature-laden VideoScan represents a serious investment. Moreover, certain configurations using unstable input sources, such as composite video, require a TBC. If you don't already have one, you need to consider the extra cost this will entail. Its features, flexibility, and one-year warranty make VideoScan a genlock worthy of some consideration.

—Fred Hurteau

TypeSmith 2.0

***Soft-Logik Publishing,* $199.95; upgrade from 1.0, $50; free upgrade for purchase of 1.0 after 8/15/93; Registered Font Designer (BSC) owners, $75.**

All Amigas.
2.0/3.0/3.1 and up compatible.
Hard-drive installable.
Not copy protected.
***Minimum system:* 2MB RAM (512K chip), AmigaDOS 2.0 or later, dual-floppy drive.**
***Recommended system:* 1–2MB chip RAM, hard drive.**

Outline-font editor for the Amiga.

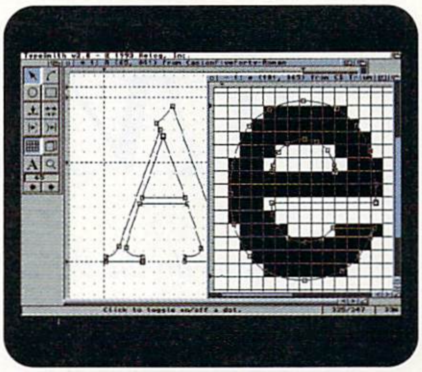
Even if you've never designed a font, you'll find the long-awaited TypeSmith 2.0 a useful package for working with graphics, page-layout, or video. Based on the German Font Designer program from Relog, Soft-Logik's outline-font editor now includes bitmap-font editing and the ability to convert between PostScript and Compugraphic fonts. With its structured-drawing capabilities, it is substantially more than a mere font editor.

Draw Your Own

Once you've used the included Installer to situate TypeSmith 2.0 on your hard disk, an Options menu allows you to customize the display mode, toolbox position, and so forth. ARexx macros are included, as are AmigaGuide scripts. Just hit the Help key and an AmigaGuide file appears describing the function or feature positioned beneath the pointer.

Topics in the well-arranged manual range from a brief history of typefaces and the basics of font design to the intricacies of winding number and even-odd fills. You'll also find a good trouble-shooting and error-code section.

TypeSmith's font compatibilities are impressive. PostScript Type 1, PostScript Type 3, Compugraphic Intellifonts (both Commodore standard and Gold Disk standard), and its own TypeSmith format (closely related to Soft-Logik outline fonts) are all supported. Intellifonts can have different file extensions, depending on whether they are for use with Workbench (.type) or with Gold Disk products (.lib). Agfa normally distributes Intellifonts in processor-specific FAIS format for MS-DOS and other Intel-based computers. Before using Intellifonts with TypeSmith 2.0, however, you need to convert them into Motorola Intellifont format with the Fountain on the Workbench or Gold Disk's FAISload program.



Watch your collection of outline fonts grow with TypeSmith 2.0

Continued on p. 60.

AMIGAs, PCs,

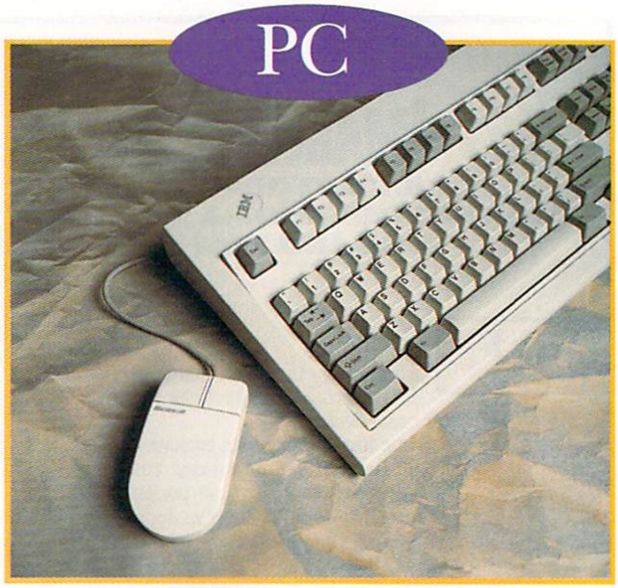
How do the three major personal-computer platforms stack up at the checkout counter when it comes to providing a popular array of applications capabilities? Let's outfit three representative systems with a comparable arsenal of software and see which one makes the smallest dent in your wallet.

BY DAVE JOHNSON

OKAY. WHETHER IT'S lions and tigers, apples and oranges, or competing computer platforms—everyone knows it's tough to make direct, meaningful comparisons between different items. However, since green is a common characteristic of the contents of most wallets, people engage in serious comparative evaluations when they shop for almost anything—especially computer systems.

This inter-platform exercise in comparative shopping is not so much a three-way showdown among computer *hardware*. Nor is it really an attempt to determine which system is *better*. Instead, we're going to try to evaluate three similarly equipped systems—based on Amiga, PC-compatible, and Mac platforms—designed to provide comparable

Editor's Note: Since prices for the computer systems themselves can vary averaging prices from three different retail outlets for each of the systems. T on a feature-for-feature basis. See the sidebar "Before You Shop . . ." for f



PLUS SOFTWARE

TOTAL $6304

LIKE A GOOD house, we'll want to give our PC-compatible system a solid foundation. That means a powerful and expandable computer, like the Dell Dimension XPS, a 486-powered minitower. Horsepower-wise, it's roughly comparable to the A4000's Motorola 68040. Like most compatibles, it has no sound capability, so we'll have ►

MACs...Oh My!

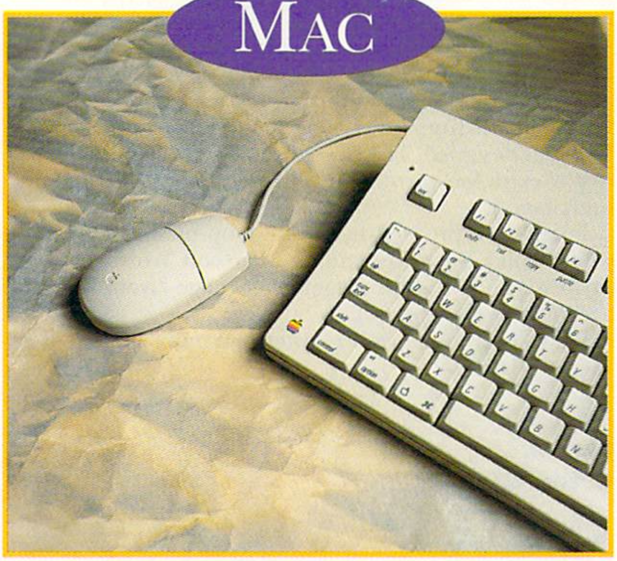
applications capabilities. The key factor in this equation then is *price*.

My selection of applications categories for comparison is, of course, just that: my own. Likewise, the choice of particular products within each category is equally subjective—although representative, I hope, of popular and reputable offerings from each market. Others conducting such an exercise undoubtedly would make different choices (and, by all means, readers are encouraged to do just that).

What I do think you'll find, however, in any comparison-shopping experiment is this: You're going to be able to capitalize on one of the Amiga's traditional advantages—high-value, low-price software. For instance, although Microsoft's Video for Windows and Apple's Quicktime have made animation more accessible to non-Amiga users, there are few tools—let alone good ones—for actually creating those animations. Similarly, while lots of Windows and Macintosh software is quite good, you pay the price at the checkout, making even a modest PC or Macintosh graphics suite quite expensive.

Our task this month, then, is to wander through the nearest computer superstore and build three comparable systems that can each do some *graphics, image processing, animation, multimedia presentation*, and *desktop publishing*. The old credit card is pretty beat up after the recent Holiday season, so we'll have to spend our money wisely. Grab a cart and we'll head first over to the aisle where the Blue crowd shops.

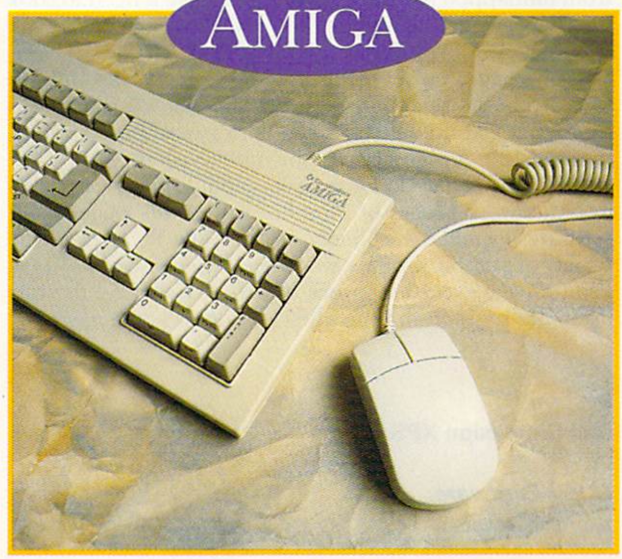
from the manufacturer's suggested retail price (Apple doesn't even do an MSRP), a representative street price was used for each machine based on SRP was used for all other products. Also, while every attempt was made to establish systems with comparable capabilities, this is not strictly possible details on comparing the three systems.



PLUS SOFTWARE

TOTAL $6112

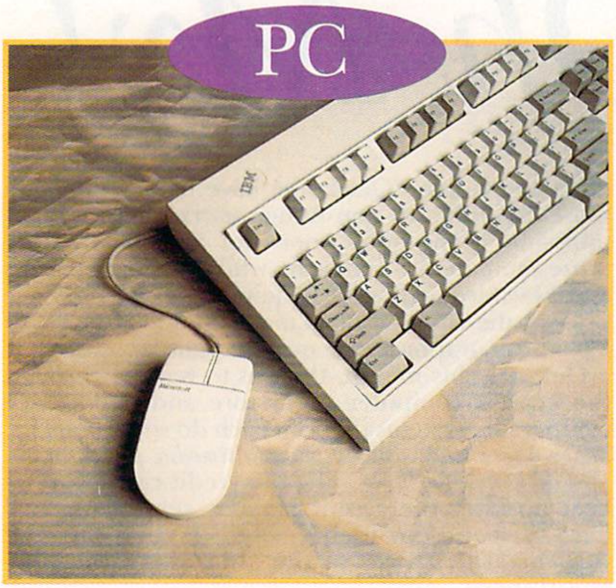
THERE ARE MORE Macintosh models on the market right now than breeds of small dogs, but after considerable thought we'll choose a high-powered 68040 model, the Quadra 800. Its formidable audio/video capabilities—including an audio digitizer—mean we can proceed directly to the software department. ►

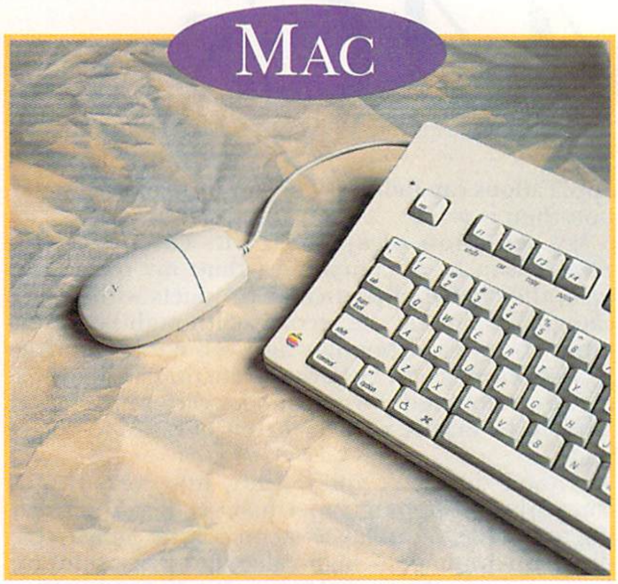


PLUS SOFTWARE

TOTAL $3615

FOR AMIGA USERS, the choice of computer is fairly easy. We'll take the 68040 version of the Amiga 4000 for its unrivaled graphics power and processing speed. Although the A4000 has both video and sound built in, we'll add GVP's DSS8+ audio digitizer to be on a par with the PC and Mac. ►





to throw in an eight-bit SoundBlaster card (Creative Labs).

Off to the software department. For our graphics needs, I'd recommend CorelDRAW (Corel Corp.) along with Fractal Design Painter (Fractal Design Corp.). Together, these programs capture the entire spectrum of graphic design from bitmapped painting to animation. We'll need to cook up the occasional morph, as well, so we'll also grab WinImages: Morph (Black Belt Systems).

To package this all up on the desktop, we slip in both Microsoft's Powerpoint (a linear slideshow player) and Asymetrix's Multimedia Toolbook (for nonlinear applications à la the Amiga's CanDo or AmigaVision).

Since we need to do some desktop publishing, let's throw in Lotus' word processor, Ami Pro, and Aldus' page-layout software, PageMaker. Finally, because the PC uses a wide variety of graphic formats, we'll need Inset Systems' HiJaak Pro to make everything work together. We wheel the cart up to the register and the salesclerk delivers the news:

System:	
Dell Dimension XPS	**$2799**
Other Hardware:	
SoundBlaster	**$99**
Software:	
CorelDRAW	**$595**
Fractal Design Painter	**$299**
WinImages: Morph	**$199**
Powerpoint	**$399**
Multimedia Toolbook	**$695**
Ami Pro	**$495**
PageMaker	**$595**
HiJaak Pro	**$129**
TOTAL	**$6304**

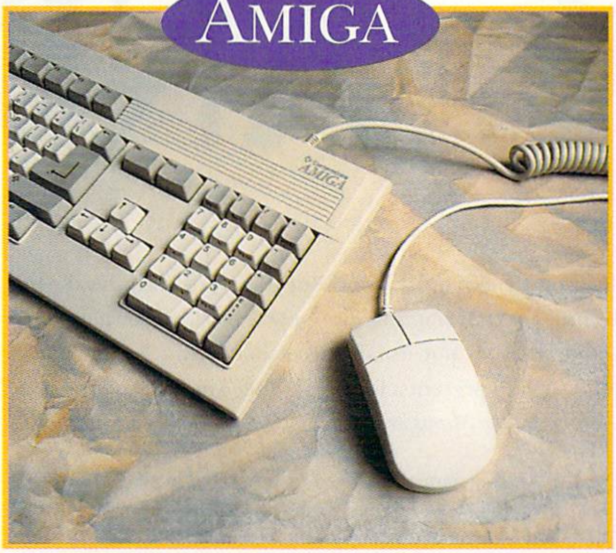
We'll select Adobe's Photoshop, the king of image processing, as our primary graphics tool. We'd like to compile some animations, as well, so Apple's Quicktime Starter Kit, with it tools for editing, compiling, and disassembling Quicktime animations, is just the ticket. For those special morph assignments, we sling Gryphon's Morph into the cart.

As for a multimedia-presentation system, we have a number of choices but finally settle on Hypercard. Universally accepted (it's shipped with every Mac), Hypercard is the very template from which most multimedia-authoring software was designed. The Developer's Kit (which you do have to pay extra for) provides us with additional tools and documentation.

Finally, we proceed to the desktop-publishing section where bulky boxes containing Microsoft Word (for word processing) and Aldus' PageMaker (page-layout software) are lowered into the cart.

We roll up to the cash register one more time to assess the new damage:

System:	
Quadra 800	**$3200**
Other Hardware:	
None	
Software:	
Photoshop	**$895**
Quicktime Starter Kit	**$139**
Morph	**$239**
Hypercard Developer's Kit	**$249**
Microsoft Word	**$495**
Aldus PageMaker	**$895**
TOTAL	**$6112**



For graphics, we're probably best off with a perennial favorite, DeluxePaint IV AGA (Electronic Arts), in combination with the latest version of Black Belt's image processor, Imagemaster R/t. We don't need to buy a separate morphing program; there's an outstanding one inside Imagemaster.

We do need a presentation system, though, and after some thought, we choose two of them. Commodore's AmigaVision is a great multimedia program, best used for sophisticated video presentations. INOVAtronics' CanDo, on the other hand, is my favorite tool for authoring interactive applications.

We also need some word-processing and page-layout tools, so let's go with the popular ProWrite (New Horizons) and the very-soon-to-be-released PageStream 3.0 (Soft-Logik).

Still a little gun-shy from our last two trips to the checkout, we gingerly approach the salesclerk and wait for the prognosis:

System:	
Amiga 4000	**$2300**
Other Hardware:	
DSS8+	**$125**
Software:	
Deluxe Paint IV AGA	**$199**
Imagemaster R/t	**$99**
AmigaVision	**$199**
CanDo	**$199**
ProWrite	**$99**
PageStream	**$395**
TOTAL	**$3615**

Before You Shop...

AS MENTIONED AT the beginning, one of the pitfalls we tried to avoid on this shopping trip was comparing the digital equivalent of apples and oranges. When we bought the computers, for instance, what did we actually get for our money? While display capabilities and monitor prices are very comparable from one system to another, other factors did not match up so neatly. For example, while the Amiga 4000 comes with a 120MB IDE hard disk and 6MB of RAM, the PC has a 340MB IDE hard disk and 8MB of memory—not to mention a CD-ROM drive. Similarly, the Quadra's 33 MHz '040 has a little more horsepower than the Amiga's 25 MHz CPU, a more robust 230MB SCSI hard disk, and 8MB of RAM. These machines aren't perfectly matched, but then again, you get what you pay for, and the A4000 is a relative bargain at its $2300 street price.

Comparing software is even harder because it is so much more subjective, and it's often impossible to find a one-for-one match across platforms. Graphics software is a good example. While no single Amiga package can claim the power of Photoshop, nobody—just nobody—does animation as well as the Amiga. Likewise, the Amiga has never had a word processor capable of out-typing Ami Pro or Word, though I'd be willing to bet the farm that the forthcoming version of PageStream can tackle the likes of PageMaker—at half the cost.

Also, the higher price tag for some PC and Macintosh software may not even be the real point. You'd be hard-pressed to find usable 3-D modeling software for under $1000 anywhere but on the Amiga (take Octree's Caligari 24 at only $399!). And I'd rather use Real 3D ($699, Realsoft/Godfrey) or LightWave (the entire Video Toaster with software is just $2395) than any PC equivalent (including the cream of the crop, Autodesk's 3D Studio, $2995).

Regardless of which individual titles come out on top, though, the Amiga's advantage is still in its cost (not to mention its multitasking). The down-to-earth price tags on Amiga programs put entire suites of software within the reach of ordinary people; comparable software would be *prohibitively* expensive on other platforms. And video businesses operating on a shoestring budget can afford to purchase a variety of Amiga software, getting the best features of several programs, which is a luxury many PC- and Mac-based shops just don't have.

I use both the Amiga and the PC; I have to—there's no Microsoft Access for the Amiga, nor is there an Amiga word processor that includes tables, charts, and equations. On the other hand, it'll be a cold day in Lompoc when I give up my Amiga and its many unique and varied programs. □

—DJ

Dave Johnson, author of the book ***The Desktop Studio: Multimedia With the Amiga****, is a pan-platform user who writes for several computer publications. Write to him c/o* ***AmigaWorld****, Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

The Ins and

Dozens of products make it possible to connect more devices to your Amiga than the standard ports and slots allow.

Amiga computers are, on the whole, a pretty expandable lot. But there are limits, and when you run up against them, you might find yourself wanting more ports or slots—or altogether different connectors that accommodate devices not usually accessible by an Amiga. We've skipped the usual SCSI controllers and such to present a listing of other kinds of adapters and extenders. *(To locate the product developers, see the Manufacturers'/Distributors' Address List, p. 90.)*



Input

There's more than one way to input data…

AIR Traffic Controller
$39.95, ***Advanced Integration Research***
Allows you to plug both a mouse and a joystick into a single port.

AKC-1000 Keyboard Adapter
$9, ***Top Secret Device***
Lets you connect an A2000 or 3000 keyboard to an Amiga 1000. *Closeout.*

Amiga Smart Port
$52.95, ***InterACTIVE Digital Devices***
This auto-switching interface provides connectors for mouse, plus digital and analog joysticks. Software lets you adjust values.

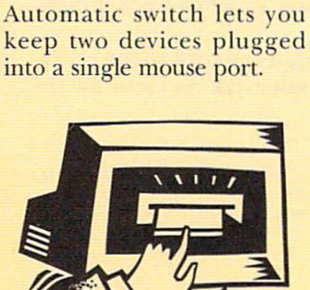
Auto Mouse/Joystick Switch
$34.95, ***AlfaData***
Plug a mouse and joystick into the same port; the switcher automatically detects which device you are using.

DP IBM Analog Interface
$14.95, ***DigiPrint***
Adapts IBM-style joysticks to the Amiga so you can take advantage of analog options in games.

DP IBM Bus Mouse Interface
$14.95, ***DigiPrint***
Lets you connect an IBM-style mouse your Amiga.

KA-1 Keyboard Adapter
$29, ***Top Secret Device***
Allows you to use an IBM PC XT-style keyboard with any model Amiga. *Closeout.*

Pyramid Mouse Master
$39.95, ***Micro R&D***
Automatic switch lets you keep two devices plugged into a single mouse port.



Video

Monitor hookups and video-related options.

Sync Strainer
$59.95, ***PreVue Techologies***
Connecting to the Amiga's video port, Sync Strainer allows you, while using a genlock, to access any multi-sync monitor that runs at 15 KHz horizontal scan rate.

Toaster Cozzy
$449.95, ***Heifner Communications***
Chassis that lets you add a Video Toaster to your A3000 or 4000. Supplies power and blackburst generator.

Toaster Oven
$998, ***Ambitious Technologies***
Four Zorro II/III slots, six PC slots, and one video slot, plus 11 drive bays in a tower-style case (with power supply) for your A4000. A dual video slot upgrade is in development, as is a version for the A3000.

Video Slot Box
about $1100, ***Digital Creations***
Adds four video slots and three power-only PC/AT bus slots to your A2000, 3000, or 4000.

VOPEX-3A12H
$2100, ***Network Technologies***
Runs up to 12 monitors from the RGB port of a single computer. A variation lets you drive multiple VGA monitors from a computer with a VGA port, such as an A3000 or 4000, or an A2000 with a flicker reducer.

X-pander Built VSLOT
$99–180, ***CeV Design***
Video-slot expansion for any Amiga except CDTV. Accom-

Compiled by Barbara Gefvert

Illustrated by Darrel Kolosta

OUTS OF I/O

modates genlocks and flicker-reducers; OpalVision and Toaster compatibility under development. Available with or without a case; attaches via RGB and parallel ports.



Serial and Parallel Ports; Cables

Keep in mind that many boards designed for A2000, 3000, and 4000 machines can be attached to A500s and 1000s with devices listed in the "Bus And Slot Expanders/Adapters" category.

Assorted cables and adapters
Benetech Electronic Supply
Redmond Cable
These companies sell specialized cables and adapters for all sorts of connection needs.

Comports 8 RS-232 Interface
$479, ***Amigo Business Computers***
This eight-channel serial expander for the A2000, 3000, and 4000 provides two outputs directly and six more via a breakout cable ($99).

Dual Serial Board
$299, ***ASDG***
Adds two serial ports to your A2000, 3000, or 4000.

G-Force 040 Combo
$1199, ***GVP***
Yes, this card is intended mainly for acceleration and RAM expansion, but it also provides an extra parallel and serial port for your A2000, 3000, or 4000.

I/O Extender
$125, ***GVP***
One serial and one parallel port for A2000, 3000, or 4000. An option that is now in the works will provide a 422 interface for controlling such things as video decks.

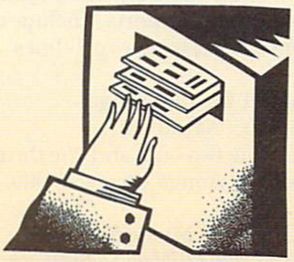
MultiFace II Card
from $235, ***Pre'spect Technics***
This half-length card for the A2000, 3000, and 4000 adds two serial and two fast parallel ports. Comes with cables and software that supports multiple boards in a single Amiga.

MultiFace III Card
$119.95, ***AlfaData***
Full-length card supplies two serial and one parallel port for A2000, 3000, and 4000. Software supports multiple cards in a single machine

Multiport Card
$199, ***Micro R&D***
Two parallel and two serial ports for A2000, 3000, or 4000.

PPA-1000
$15.95, ***Luna Tech***
Parallel port gender changer. Allows use of A500, A2000, and A3000-style peripherals on A1000.

PPA-2000
$15.95, ***Luna Tech***
Lets you use A1000 parallel peripherals on an A500 or A2000.



Bus and Slot Expanders/Adapters

Use more and different cards on your Amiga.

2 to 3 IDE
$50, ***Elite MicroComputers***
Turns your A1200's single IDE port into a pair of IDE connectors.

ATTO SCSI Expander
$995, ***ATTO Technology***
Need to run more than seven devices from your SCSI controller? This adapter maps each SCSI bus ID to seven devices, thus expanding the device limit to 49. Supports SCSI-1 and -2.

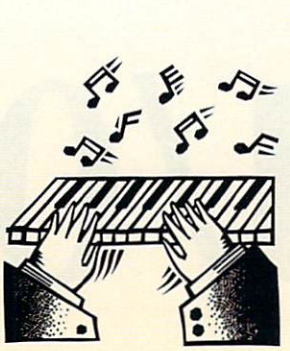
NakeD-Up
$49.50, ***Pre'spect Technics***
Lets your A1000 or A500 run virtually any Zorro-II card designed for the A2000. Includes a pass-through connector. Special versions of the board allow you to run ReadySoft's A-Max II Mac Emulator, MacroSystem's Retina display board, and any of the several serial-port boards.

Slingshot
$39.95, ***Micro R&D***
Transforms your A1000 or A500 bus into a slot capable of accepting Zorro-II cards designed for the A2000. A professional version ($59.95) also provides a bus pass-through; another model ($74.95) is designed for use with MacroSystemUS's Retina display card.

Toaster Toolbox
$369.95, ***DTV Systems***
Eight PC-style slots and a power supply in a flat case (suitable for rack mounting) or mini-tower for your A2000 or A3000. Designed for use with TBCs, SFCs, and so on. Supports DPS's TBC IV in conjunction with that firm's Personal Animation Recorder (fitted in an Amiga) while providing an extra serial port.

X-pander Built Chassis
$99–290, ***CeV Design***
Cases, in versions for both the A500 and A1000 (an A1200 model is in the works), that add one, two, or three Zorro II slots, plus a power supply. Some provide extra drive bays. With modification, cases can accept graphics cards (such as MacroSystem-US's Retina) and serial boards.

Zorro Extender Card
$39.95, ***Overland Engineering***
Designed for use with the vertical Zorro slots on the A2000, this adapter raises your Zorro connection about five inches out of the machine, making it more accessible for hardware design purposes. ►



MIDI Interfaces

Most of these interfaces are serial-connected devices offering MIDI ins, outs, thrus, and even some serial-port pass-throughs.

Custom MIDI Interface
from $174.95, ***Western Custom Manufacturing***
Designed for simultaneous output to multiple MIDI devices. Order the configuration you need, from 1 in and 4 out/thrus to 2 switchable ins and 12 switchable out/thrus.

Deluxe MIDI Interface
$89.95, ***Western Custom Manufacturing***
Provides one in and thru, two switchable thru/outs, plus a serial-port pass-through.

DM Music Plus
$129.96, ***3D Video***
One in, two out, and two thru MIDI connectors, plus a pass-through for both the serial and parallel ports. Includes audio-digitizing capabilities.

MIDI for the Amiga
$49.95, ***Skyles***
One in, two outs, and one thru for any Amiga except A1000.

One-Stop Music Shop
$649, ***Blue Ribbon SoundWorks***
This Proteus synthesizer-on-a-card for the A2000, 3000, or 4000 includes an in/out MIDI interface and allows you to attach a specialized version of the Triple Play Plus ($149) to achieve 48 MIDI channels out.

The Phantom
$89.95, ***Dr. T's***
MIDI output plus sync in and out jacks that read and write standard SMPTE formats.

Pro MIDI Plus
$49.96, ***3D Video***
One MIDI in, out and thru for any model Amiga (separate version for A1000).

ProMidi Interface
$39.95, ***Oregon Research***
In, thru, and two outs for all models except the A1000.

Pyramid MIDI Interface
$59.95, ***Micro R&D***
For all Amigas except A1000. One MIDI in, two outs, and two thrus, plus a push-button controlled serial pass-through.

Triple Play Plus
$179, ***Blue Ribbon SoundWorks***
One MIDI in, one thru, and three separately addressable outs designed especially to work with the Bars&Pipes Pro sequencing software. Works as a regular interface with one out.



ROM Switchers

Add two or more operating-system ROMs (1.2, 1.3, 2.0) to your Amiga's single ROM socket.

A600 Kickstart ROM Switch
$49.95, ***AlfaData***
Lets you add a 1.2 or 1.3 ROM to your Amiga 600 so you can play games that are incompatible with Kickstart 2.05.

AIR ROM-Matic
$49.95, ***Advanced Integration Research***
Promises to work with any Amiga model up to A3000. ROMs switch via mouse.

Auto Kickstart ROM Switch Plus
$39.95, ***AlphaData***
Lets A500 and A2000 users access a second Kickstart version by pressing the left mouse button while booting.

Multistart II
$24.95, ***DKB***
Allows A500 and A2000 users to choose between two ROMs via the keyboard.

Qwicka Switcha
$29.95, ***Better Concepts***
Lets A500 and 2000 owners select among a full four operating system versions.

Pro ROM Switcher
$39.96, ***3D Video***
Select one of two ROMs via keyboard. Promises to work with all A500s and 2000s.

Pyramid ROM Switch
$29.95, ***Micro R&D***
Lets A500 and 2000 owners alternate between two ROMs.

SwitchStart
$39.95, ***Expert Services***
Switch between two Kickstarts from an A500, 2000, or an A1000 equipped with Expert Services' now-discontinued Rejuvenator board.

There's more?

Yes. ***Amigo Business Computers,*** you may recall, recently announced an adapter that turns your A1200 or A600's PCMCIA slot into a serial port ($199). The design is done, but Amigo is not in production mode because of low demand—so call if you're interested! Meanwhile, ***MacroSystemUS*** is working on a modular device that plugs into both the Retina and Amiga; it will let you switch between displays and send RGB output directly to videotape. Finally, for those who need to troubleshoot the operation of their ports, ***3D Video*** offers its **Pro Port Analyzer** kit ($99.95). ■

Who's Running This Show?



You may be surprised to learn that Amigas are at the forefront of interactive-multimedia presentations all over the place. So let's sneak a peek behind the scenes and find out just what's going on.

THE AMIGA IS the hard-working engine running countless multimedia systems, but in this profile we'll focus primarily on *interactive* multimedia—on-screen events in which the presenter or the viewer can control the computer's display. Unlike standard video, interactive multimedia can be customized in real time for each presentation or individual. This is the true power of multimedia—and it is becoming increasingly important in the way that information and entertainment is being made available today.

So let's take a scroll through such diverse worlds as sports, the arts and entertainment, business, the news media, education, medicine—and more—to see just what your favorite computer is up to behind the scenes of so many leading-edge presentations.

Play Ball

Today's live sporting events require fast and efficient interactive multimedia systems for displaying information on giant screens to the fans. A number of teams and organizations have turned to the Amiga and various third-party programs, including the Atlanta Braves (Atlanta-Fulton County Stadium's Sports Display), the California Angels (Anaheim Stadium), the Miami Dolphins (Joe Robbie Stadium's Jumbotron), the Philadelphia Phillies (Veterans' Stadium's Phanavision), and the Harlem Globetrotters.

One of the Amiga's more-interesting sports applications is an interactive visual model of the proposed site of the 1996 Olympics in Atlanta, Georgia. Working with the Georgia Institute of Technology's Multimedia Technology Laboratory under the supervision of GIT's president, John Patrick Crecine, the Atlanta Olympics Planning Board created an interactive display so compelling, the city became the first ever to win approval from the IOC on an initial bid. This laser-disc presentation combined digitized voice, 3-D animation, and video into a multiscreen interactive event in which viewers can take a virtual tour of the entire Olympic village. The same data has also played a role in the preparation of storyboards and the production of commercials for the 1996 Olympics.

The Name of the Game

Commodore has licensed the Amiga for a number of arcade games, but the machine has also been incorporated into a number of state-of-the-art interactive games. For example, one popular arcade game called Mad Dog McCree (American Laser Games), set in a small town in the Old West, challenges you to save the mayor and his daughter from an outlaw gang. Featuring live video of shoot-outs and fight scenes, it uses a laser disc controlled by a genlock-equipped A500.

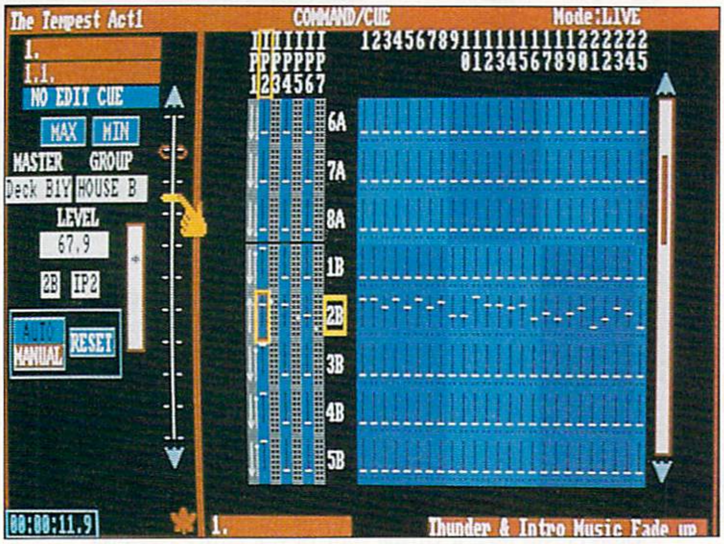
The Amiga has also been a pioneer in the emerging world of virtual reality. The first full-scale virtual-reality game premiered as BattleTech, at the BattleTech Center in Chicago, Illinois, where Amiga computers generated displays and kept track of scoring as indi- ►

By Geoffrey Williams

viduals in tank modules slugged it out on a giant virtual playing field.

Today, the latest addition to the lineup is Dean Friedman's series of InVideo Systems games (see photo, previous page). Eat-A-Bug, created originally by Friedman for Nickelodeon's popular TV game show *Total Panic*, became the first coin-operated virtual-reality game installed in a traditional arcade—the Family Fun Jungle in Perry Hall, Maryland. The object of the game is to "eat" as many small flies, mosquitoes, and gnats as possible while avoiding the centipede, the giant spider, and the killer bee. Eat-A-Bug is the first in a line of games and sports simulations (many of which are currently in museums, profiled below in "Partnership of Old and New") that InVideo hopes to install in arcades across the country.

What makes the InVideo games different from traditional virtual reality is that you play them without peripherals—no helmets, visors, or goggles—eliminating the associated problems of discomfort, hygiene, safety, and limited vision. You watch yourself on a large monitor; your image is keyed into the virtual playspace, so that your body becomes part of the game, capable of interacting with on-screen objects. You can grab an object, move it, and then shake it off; you can hit an object and watch it bounce away. You can also animate any of the screen objects, accompanied by music and sound effects. You are literally *inside* a video game.



Command/Cue's live screen provides an operable mimic of audio, lighting, and motion hardware. ARexx and CD-ROM support are recent additions.

Help Key

Thousands of Amiga-based interactive kiosks function as everything from airport information systems around the world to paint displays in hardware stores. Twenty-four-bit Amiga-based kiosks at eight branches of the Bank of China in Hong Kong (a country where Amigas are not even sold) provide customers with basic financial information. This system uses AmigaVision, Centaur's OpalVision, animated sequences, and two hours of digitized audio in Cantonese and Mandarin.

Visitors to the Canadian Broadcasting Corporation's CBC Broadcast Center in Toronto use Amiga-based kiosks to locate studios and offices in the large facility. Similarly, Amiga-based kiosks help customers find their way around the Franklin Mill Shopping Mall, a huge outlet complex in Philadelphia, Pennsylvania.

Interactive kiosks have also become an effective way to disseminate medical information. Network One, a company based in Chandler, Arizona, has developed a system for dentists' offices. Sixteen modules, each three to four minutes long, combine animation, photography, and full audio narration to provide patients with reports on topics ranging from oral surgery to anxiety. Network One has also created a similar system for optometrists' offices.

A Partnership of Old and New

Some of the most-popular venues for interactive displays are museums. One featured attraction at Miniature World in Victoria, British Columbia, is Space 2201, a full-size mock-up of a star cruiser of the future. A viewport gives you a window on space as you "orbit" above Jupiter, which is illuminated by black light. To one side is a mysterious vortex of pulsing radiance; this effect is created by incorporating an Amiga RGB monitor into the starfield background, where the phosphors on screen glimmer like heavenly bodies. Color cycling animates the vortex; thanks to a little blending along the edges of the monitor, it melts into the space background. An Amiga provides the background sound of the ship's engines, as well.

Another Amiga functions as a general information console, triggered by placing your hand on a glowing handprint. A third Amiga provides a genlocked view of flight through the vortex, with additional sound effects and imagery. Miniature World was created by Peter Locke, a designer of traditional astronomy models, and Paul Marcano, an Amiga artist. It has been running 12 hours a day for a year and a half.

A touch-screen-based exhibit at the Anchorage, Alaska, Museum of History and Art has been up and running continuously for more than three years. Using AmigaVision and a laser disc, it presents nine three-minute segments on native culture. Terry La Grone of Videoplex reports that the system does require some maintenance: Once a year, they dust the laser disc.

Amigas are an important part of the Lasers, Holograms and Virtual Reality Exhibition, a special presentation created by the Center for Science and Industry, based in Columbus, Ohio, and scheduled to tour eight other science centers in the US. Among the exhibit's displays is Virtual Volleyball, created by Dean Friedman of InVideo Systems as an example of virtual-reality gaming. Using the same technology as Eat-A-Bug, Virtual Volleyball supports up to four players per side. Just as in regular volleyball, the object of the game is to keep the ball in the air without letting it touch the net or the floor. Participants view themselves in a virtual environment on a 120-inch monitor; they can hit and serve a virtual ball, which leaves rainbow streaks of color as it sails through the air.

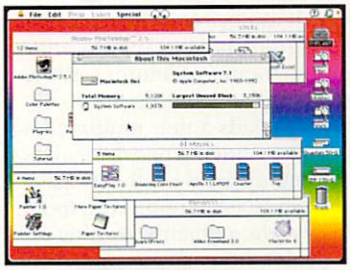
InVideo Systems has also designed two other museum demonstrations of virtual reality. Dreams, a popular and award-winning exhibit at the Brooklyn, New York, Children's Museum, offers six play environments illustrating the premise that "anything can happen in your dreams." Included among these are opportunities for children to fly through the clouds and pop balloons, swim underwater and tickle the fish, fly through space ►

The World's First Multi-Platform Emulation System!

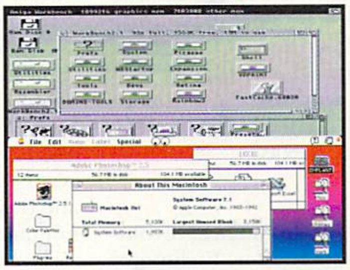
EMPLANT™

EMPLANT is a state-of-the-art hardare board that is the foundation for emulatiing virtually any computer made today. A simple software driver and ROM(s) from the computer to be emulated are all that is required! Custom programmable logic allows the EMPLANT hardware to actually become the exact hardware of the computer it is emulating! Multiple emulation modules can be run *at the same time* using a single EMPLANT board!

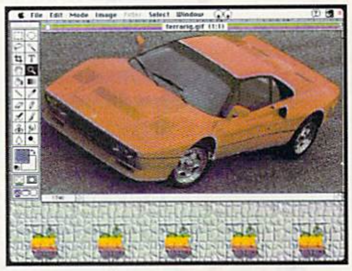
AppleTalk, printer, midi, and modem support can be provided through the two RS-422 serial ports. A high speed SCSI controller allows any SCSI device to be plugged directly into the EMPLANT hardware (including scanners, SyQuest drives, hard drives, CD-ROM drives and more!). The serial ports and SCSI interface can be used by Amiga programs and emulation modules *at the same time!* The EMPLANT hardware is a standard Zorro II/III plug in card for the A2000/3000/4000 (A500/1000 owners need a Zorro Bus adapter in order to use EMPLANT). A PCMCIA version for the A600/A1200 will be available in the near future.



Typical Mac emulation screen.



Multitasking! Just flip or drag down the emulation screen!



Adobe PhotoShop on your Amiga!

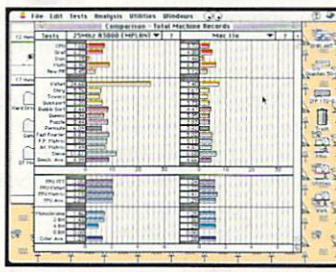
FAST, FULL COLOR, STEREO SOUND, MULTITASKING MACINTOSH EMULATION!

The Macintosh emulation is a 'generic' Mac, with speed based upon what Amiga system EMPLANT is installed in. An A3000 is equivalent to a Mac IIci, and an A4000 is equivalent to a Quadra 700! **Don't be fooled** by other emulations using old 64K or 128K ROMs, **only 256K ROMs** (or later) provide support for color, stereo sound, ADB devices, and NuBus expansion, all of which are emulated by the EMPLANT hardware and/or Mac emulation module! Due to the magic of the EMPLANT hardware, Mac software that accesses Mac hardware registers directly **will** work!

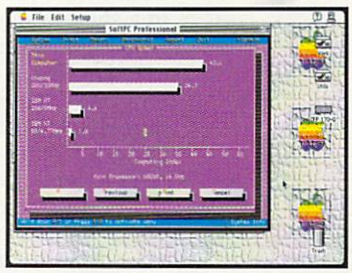
Support for up to 16 colors is provided for non-AGA machines. A4000 owners can use a full 256 colors! Support for Picasso II, EGS-28/24 Spectrum, Piccolo, Merlin, and Retina video boards is **available NOW!** Support for other video boards will be available soon! Imagine running PhotoShop in MILLIONS of colors on your Amiga! Now, imagine being able to 'flip' back to the Amiga side or drag down the Mac emulation screen! The Mac emulation (like all emulation modules being released for EMPLANT) fully ***multitasks*** with the Amiga! Now, install one of the above mentioned video boards and imagine the ability to play double-size QuickTime(tm) movies (with full stereo sound) FASTER than the equivalent speed Mac! The Mac emulation module *requires* an accelerated Amiga - 68020, or a 68030/68040 w/MMU) and 256K Mac ROMs (not provided).



24 bit video board support!
(Picasso II video shown)



"Speedometer" comparison.
(A3000/EMPLANT vs MAC IIx)



Run PC software on your Mac!
(SoftPC Pro 'SI' rating shown)

FUTURE EMULATIONS!

Since the EMPLANT's hardware is so versatile, a completely different computer can be emulated by just changing the emulation software patch and the ROM(s). Apple][/+/e, Mega ST, IBM AT (386/486), C64/128, Atari 400/800, and even game machine (Genesis/SNES) emulators are planned in the near future...EMPLANT is not limited to a single emulation!

PRICING

BASIC EMPLANT system - Emulation hardware and software - $279.95
OPTION 'A' - BASIC EMPLANT system with dual high speed serial ports/AppleTalk support - $349.95
OPTION 'B' - BASIC EMPLANT system with high speed SCSi interface - $349.95
DELUXE - BASIC EMPLANT system with both serial AND SCSI options - $399.95
Shipping & Handling - $10.00 per order (All orders shipped via UPS Blue/2 day service)
C.O.D. Fee - $5.00

All EMPLANT packages described above come with Mac emulation software and necessary device drivers. ROM(s) are not shipped with this product. Sources available upon request.

Utilities Unlimited, Inc.
1641 McCulloch Blvd Suite 25-124
Lake Havasu City, AZ 86403
(602) 680-9004 - Voice
(602) 453-6407 - FAX
(602) 680-9234 - Technical support
(602) 453-9767 - 24hr BBS (v32bis)
Dealer inquiries welcome!

and juggle planets, and even jump around outside while it rains cats and dogs. Letters, Numbers, and Shapes, installed at the Children's Museum in Laredo, Texas, the Eureka! Children's Museum in Halifax, England, the Franklin Institute in Philadelphia, Pennsylvania, and the North Carolina Museum of Life and Science in Durham, offers young children the opportunity to step inside a virtual alphabet book. They can touch a letter and change it into an object beginning with that letter, accompanied by amusing animations and silly sounds; they can grab the number 5 and change it magically into five starfish. They can also interact with a variety of simple geometrical forms to reinforce shape recognition, and they can use their bodies as virtual paintbrushes, drawing in thin air with bright colors. InVideo is also working on a dental-hygiene presentation, featuring musical teeth, for the Science Place museum in Dallas, Texas.

Live on Stage

Just as NewTek brought about a technological revolution in the video industry with its Toaster, Richmond Sound Design—a small and virtually unknown company—has done the same thing in the theatrical world with its Command Cue system. Command Cue is a sophisticated, interactive MIDI-based sound, lighting, and special-effects control system, and it's used in some of the biggest and most-expensive shows in the world.

The Command Cue unit plugs into the Amiga and takes advantage of the machine's multitasking capabilities to provide programmable control of more than 4000 audio channels, 8000 lighting channels, and 8000 separate analog or digital switches for special-effects and other devices. It even offers programmable motion control with regulation of duration, value, acceleration, and deceleration. It can do everything from synchronizing all of the audio and lighting cues in a show to moving the scenery in and out on time. This is multimedia on a grand scale.

In Las Vegas, the Command Cue system manages a number of shows, including *Enter the Night* at the Stardust Hotel and *Brasilia* at the Rio Hotel. It is also used in the Buccaneer Bay pirate-ship show at the Treasure Island Hotel, in the Volcano attraction at the Mirage Hotel, in the Bacchanal animated-statue show at Caesar's Palace, and in Siegfried and Roy's magic-show extravaganza at the Mirage Hotel—the most-expensive live theatrical show ever produced.

Command Cue is also involved in some of the biggest Broadway hits, including the upcoming Disney version of *Beauty and the Beast* and the touring productions of *Joseph and the Amazing Technicolor Dreamcoat*, *Miss Saigon*, *Will Rogers' Follies*, and *Tommy*. The system also manages the Canadian production of *Phantom of the Opera*, as well as the Hollywood version of Andrew Lloyd Webber's *Sunset Boulevard*, where it controls a $100,000 special effect in which a set piece of a building flies in with animated shutters and windows performing in sync to the music.

A number of amusement-park attractions use Command Cue, as well. The system controls audio, lighting, and special effects for the *Wild, Wild, Wild West* stunt shows at the Universal Studios Tour in Orlando, Florida, and Anaheim, California, and audio and special effects for the *Indiana Jones Stunt Spectacular* at Disneyland/MGM Studios in Orlando. All of the parades at Disney's Magic Kingdom, also in Orlando, use the Amiga/Command Cue setup to synchronize the audio for each float as it proceeds through specific areas in sequence. Disney is so sold on Command Cue that it's even used to run the fireworks show at Disneyland in Tokyo.

The Global Village

One of the newest applications of multimedia is the distribution of current news and information via network or modem. At present, the leading program for distributed multimedia is Scala's InfoChannel. It's similar to that company's Multimedia 200/300, but with one one critical difference: It can be remotely updated.

There are hundreds of InfoChannel installations around the world. Among them is Channel 4000, distributed by the Desktop Video Wizard's Network. Five days a week, DVW downloads a new multimedia presen-tation to participating Video Toaster dealers across the country, providing updates on the Toaster and desktop-video technology. Each edition is 10 to 12 minutes long, with seven or eight segments focusing on technical information, dealer information, product news, and sales and business advice. DVW hopes to add more interactivity to the system—incorporating features such as instant polling—and expand it to include dealers of other desktop-video systems.

InfoChannel also provides up-to-the-minute weather information in a variety of formats to the ready rooms, control tower, and remote-radar installation at the Oceana Naval Air Station in Virginia Beach, Virginia, and to March Air Force Base in Moreno Valley, California, where weather information is distributed across the entire base. Many large corporations, including the Ford Motor Company, JC Penney, and McDonnel Douglas, use InfoChannel to distribute news and company information to employees.

Ironically, even IBM uses the Amiga for multimedia. The IBM mainfram computr factory in Rochester, Minnesota, has used Scala for internal presentations and training for over a year. Also, last June, a Toronto-based company called FilmClips used Scala for promoting an employee event through informational video displays at the Don Mills IBM Lab in Toronto. The Scala presentations were credited with increasing attendance from less than 100 at the previous year's sessions to a record 600 attendees in 1993. And finally, at last year's CeBIT convention in Hannover, Germany, the IBM OS/2 Multimedia Presentation used the InfoChannel multimedia software running on—what else—an Amiga!

Whether it sports AmigaVision controlling an interactive kiosk, InfoChannel distributing news updates across the country, or a specialized Command Cue hardware/software system managing a Broadway show, the Amiga has proved itself to be a major contender in the world of multimedia entertainment and education. Next time you see a multimedia presentation, take a peek at the hardware running it. Thanks to its multitasking power and cost effectiveness, there's a good chance you'll find an Amiga behind the scenes. ■

Geoffrey Williams is director of Creative Business Presentations and a frequent contributor to computer-video publications. The author extends special thanks to David Tiberio for his Internet expertise and personal help in preparing this article.



Hidden AmigaDOS Gems

Our three-part series on mining the secrets of AmigaDOS continues with this look at using scripts to beef up your Shell power.

Part 2: Script Tips

THE AMIGA'S OPERATING system packs a wallop right out of the box, with utilities to satisfy all but the most sophisticated and demanding users. But Amiga users *are* a sophisticated and demanding bunch, and invariably they figure out something they'd like to do that's not a one-step operation. That's where scripting comes in: harnessing AmigaDOS's powerful built-in script capabilities to turn even complex procedures into simple, straightforward commands.

Script files (also called *batch files*) are just text files that contain a list of commands your system will execute in order. You can write scripts with any text editor, such as the ED editor included with AmigaDOS, or with your word processor if it offers an option to save text in plain ASCII format with no special codes. Although a script file can be located anywhere, the system reserves the S: directory (usually found on your bootup disk) for scripts and will look there for them automatically.

There are two ways to run scripts. Early versions of AmigaDOS require the Execute command to launch them; type Execute followed by the name of the script. AmigaDOS 1.3 and later add a special file-protection bit marking a file as a script and sending it automatically to the Execute command when you run it.

To set the script bit, use the Protect command. For example, to set the script bit on a file called MyScript, you'd type

```
PROTECT S:MYSCRIPT +S
```

To check whether a file's script bit is set, use the List command. Along with the file's name, size, date, and comments, List also shows you its protection bits. Check for an S in the protection-bit listing. It will look something like this:

```
MyScript    56 -s—rwed 01-Mar-94 15:41:00
```

Now that the script bit is set, you can run the script by simply typing MyScript.

Even if you've never created a script from scratch before, you've probably dealt with scripts when an application required you to add a statement to your S:Startup-Sequence or S:User-Startup file. User-Startup was programmed into AmigaDOS 2 to give you a central script where you could make all your additions without altering the standard startup-sequence. If you're still running AmigaDOS 1.3, you can append this feature by plugging in these three lines before the EndCLI command in your startup-sequence:

```
If Exists S:User-Startup
Execute S:User-Startup
Endif
```

Examine the startup scripts and other files in your S: directory to get a good idea of how scripts are structured.

One-Liners

Why bother writing your own scripts? Scripts simplify your working environment; they can even let you perform elaborate Shell operations with a single mouse click. The time you spend learning to write scripts will likely be paid back tenfold in the amount of time you'll save by not having to type multiple commands or look up rarely used command-line arguments.

Scripts can be simple one-liners or structured programs with conditional jumps and interactive input. (If you're going to dig that deep, though, I'd suggest taking the time to learn ARexx, which is easier to use and more powerful than the AmigaDOS script language.) One-line scripts are handy for complex commands that require a number of command-line arguments or switches, or those that follow an obscure, hard-to-remember syntax. They're functionally equivalent to Aliases (see "Part 1: Shell Secrets," Mar. '94, p. 41); I use a script instead of an Alias for less-frequent commands. Aliases have the advantage of executing instantly without disk access, but each Alias eats up a couple dozen bytes of memory, unlike scripts, which take up only disk space.

Scripts are particularly handy for operations requiring multiple steps. Consider the simple example of launching a program that requires a larger stack ►

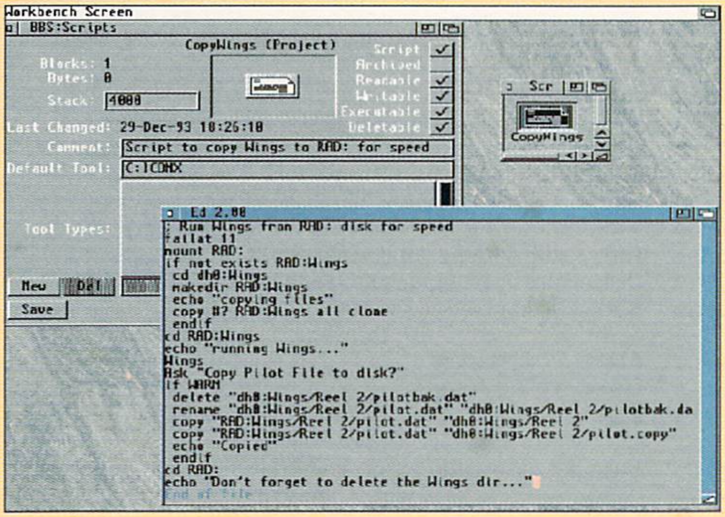
BY DENNY ATKIN

ILLUSTRATED BY FRED LYNCH

value than your Shell normally uses. You'd type a CD command to change to the program's directory, followed by the Stack command; then you'd type the program's name to launch it; afterwards, you'd reset the stack to its previous value and type another CD command to return to the original directory. A script automates this process—reducing it to a single step.

Suppose you have a program called ProStream that requires a stack of 50,000 bytes. To create a script called PS to launch it, type ED S:PS and then enter the following commands in the editor:

```
CD Work:ProStream
Stack 50000
Run ProStream
Stack 8192
CD Work:
```



Even if you prefer using Workbench, you can still use scripts to iconize your command-line applications and execute them from Workbench.

In ED type Esc and then X to save your document and quit. Then type PROTECT S:PS +S at the Shell prompt to set the script bit. Now you can launch the program by typing PS.

False Icons

Thanks to the IconX command, you can take advantage of scripts even if the Workbench is your interface of choice. If you use the Shell only occasionally, you may want to "iconize" your command-line applications and execute them from the Workbench instead.

Suppose, for example, that you keep your rarely used, decorative fonts on a floppy and copy them to your RAM disk whenever you need them. You can create an icon to automate that procedure. Start by typing ED SYS:TOOLS/COPYFONTS to create the script file. Then type in the following script:

```
MakeDir RAM:Fonts
Copy DF0:Fonts RAM:Fonts all
Assign Fonts: RAM:Fonts add
```

Now from the Workbench load IconEdit and create a Project icon (or just choose the default) for this script. Save it as SYS:Tools/CopyFonts.info; make sure you set it as a Project, rather than Tool or Drawer, icon. Click once on the icon, and select Information from the Workbench Icon menu. Switch the Default Tool setting to C:IconX, and save your changes. Now you can just double-click the icon you created to execute the script. You can run almost any script from the Workbench by creating a Project icon for it and setting the icon's Default Tool to C:IconX.

Make My Day

As we've seen so far, scripts are very useful for complex, hard-coded (unchanging) tasks. But what if you want to create a script that will perform an operation on any file? No problem, thanks to AmigaDOS's support for command-line arguments in scripts.

To add an argument to a script, you use the .Key command to set up a variable to hold the name of the file on which you want to operate. Suppose you want to create a command to display the contents of a text file and its size on screen. Type ED S:TSIZE to set up the script file and enter the following script:

```
.Key TextFile
Type <TextFile>
List <TextFile>
```

Save the script. Then set the script bit with the Protect command, and type TSIZE S:STARTUP-SEQUENCE to try it out. When your system executes the script, it substitutes the filename S:Startup-Sequence for any occurrence of <TextFile>.

Note that you must surround the variable with brackets—the same symbols used for redirecting file output. Using brackets to mark off variables can be confusing, then, if your script also uses redirection. AmigaDOS offers .Bra and .Ket commands, however, which let you replace the brackets with characters of your choice. Since curly braces rarely appear in AmigaDOS command lines, I suggest substituting those. Our simple example above would then read:

```
.Key TextFile
.Bra {
.Ket }
Type {TextFile}
List {TextFile}
```

Holding All the Wildcards

Scripts can also handle multiple files. The List command's LFormat option, for example, lets you write scripts that perform the same operation on similar files, even when the command you're using doesn't support wildcards.

Suppose you want to view all the MPEG animation files in a directory, for instance. The public-domain MPEG viewer, MP, doesn't support wildcards. (You'd have to list each filename individually before executing the operation.) Using the List command, however, you can create a script file that will show each MPEG file in sequence.

In addition, LFormat lets you specify the formatting of List's output. You can customize it with a variety of variables, but the one that's important in scriptwriting is the %S%S combination, which inserts the path- and filenames of selected files into List's output. For instance, to create a script displaying all the MPEG ►

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animations in your Work:Anim directory, selecting the HAM8 display option for each one, issue the following command:

```
List >RAM:ShowMPEG Work:Anim/#?.MPG
   LFORMAT="MP -dither HAM8 %S%S"
```

This line creates a text file called ShowMPEG on your RAM disk; it contains a number of lines like this:

```
MP -dither HAM8 Work:Anim/Jessica.mpg
MP -dither HAM8 Work:Anim/Twins.mpg
MP -dither HAM8 Work:Anim/Dawn&Jim.mpg
```

Now you can just type Execute RAM:ShowMPEG (or set the script bit and just type RAM:ShowMPEG) to view all the MPEG animations in that directory.

This technique is a real time-saver when you want to operate on only some of the files that match a wildcard pattern. Suppose you wanted to convert about half the IFF24 files in your PICS: directory to JPEG format. You could use a command like this to create a script:

```
List>RAM:JPConv PICS:#?.IFF24 LFORMAT
   ="IFF2JPEG %S%S 75"
```

Now when your system executes it, this script file will use the IFF2JPEG command to convert all your IFF24 pictures to JPEG format. Since you want to convert only some of the pictures, you'd type ED RAM:JPConv to edit the file, then delete the lines containing names of pictures you don't want to convert. This step gives you a degree of flexibility you can't get using wildcards to operate on multiple files.

Tricks of the Trade

A number of AmigaDOS commands are particularly useful in scripts. When you're creating a script and it's not working properly, for example, you'll find Echo handy for debugging. Echo writes the string following it to the Shell. Simply add an Echo line before each command in your script so that you can trace on screen exactly what's happening as your system executes it:

```
Echo "Delete old backup files"
Delete Work:backups/#?.doc
Echo "Copy current files to backup directory"
Copy Work:Documents/#?.doc to Work:Backups
```

If your Amiga has voice-synthesis libraries (not included with AmigaDOS 2.1 or 3.0, but if you upgraded from an earlier version you might still have them in place), you can replace the Echo command with Say to get verbal feedback on your script's progress. Once your script is working properly, add a semicolon to the beginning of each Echo or Say line to convert it to a nonexecuting file comment.

Earlier we looked at using the Protect command to set the script bit on a batch file. Beginning with AmigaDOS 2, Protect accepts wildcards, so you can type PROTECT S:#? to set the script bit on every file in that directory. Although some applications use the S: directory to store data, setting the script bit won't hurt those files; if you try to execute them, your system will merely return an error message.

If you ever find yourself without an editor at hand (using a machine with the ED command deleted to save space, for instance), you can use the Copy command to create (but not edit) scripts. Type COPY * TO SCRIPTNAME, press Return, and then start typing your script. (Be careful to get each line exactly right before hitting Return.) When you've finished entering the script, press Ctrl \ to close the file. If you make any mistakes, though, you'll have to start from scratch.

Low-Cost Solutions

To wrap up this installment and get a little practice, we'll look at a few simple but practical scripts. If you ever use the List command, for instance, you'll notice that filenames appear in seemingly random order. Let's create a script called SList to display the directory in alphabetical order. Type ED S:SLIST and enter the following in the editor:

```
.key DirToList
.bra {
.ket }
List >RAM:Temp {DirToList}
Sort RAM:Temp
More RAM:Temp
Delete RAM:Temp
```

Don't forget to set the script bit. Now you can type SList, followed by an optional disk or directory name, to get a sorted tally. The script first sends the output of the List command to a temporary file in your RAM disk; then it uses the Sort command to arrange it alphabetically and the More command to display it on screen. After you've finished viewing the list, your system deletes the temporary file. It's a simple script, but it comes in handy.

You can also use a script to get around another AmigaDOS limitation: the MakeDir command, which creates a directory but no Workbench icon for it. We'll program a command called MkIDir to create a directory with an icon, or to just add an icon if a directory already exists.

First, come up with an icon for the drawers you'll create. Load IconEdit and load or create a drawer icon, then save it as S:drawer.info. Now type ED S:MKIDIR and enter the following script into the editor:

```
.Key DirName
.Bra {
.Ket }
If Not Exists {DirName}
MakeDir {DirName}
EndIf
Copy S:drawer.info {DirName}.info
```

Save the file, and set the script bit. Now you can use MkIDir instead of MakeDir whenever you need a Workbench icon for a new drawer.

Next month, we'll finish up by taking a look at using the Shell to give your Amiga new printing prowess. In the meantime, the more scriptwriting you do, the more creative you'll become. ■

*Editor and writer Denny Atkin is the author of **Denny Atkin's Best Amiga Tips and Secrets**, a collection of hints on everything from using AmigaDOS 3.0 to expanding your system.*

Cool Moves with HotLinks

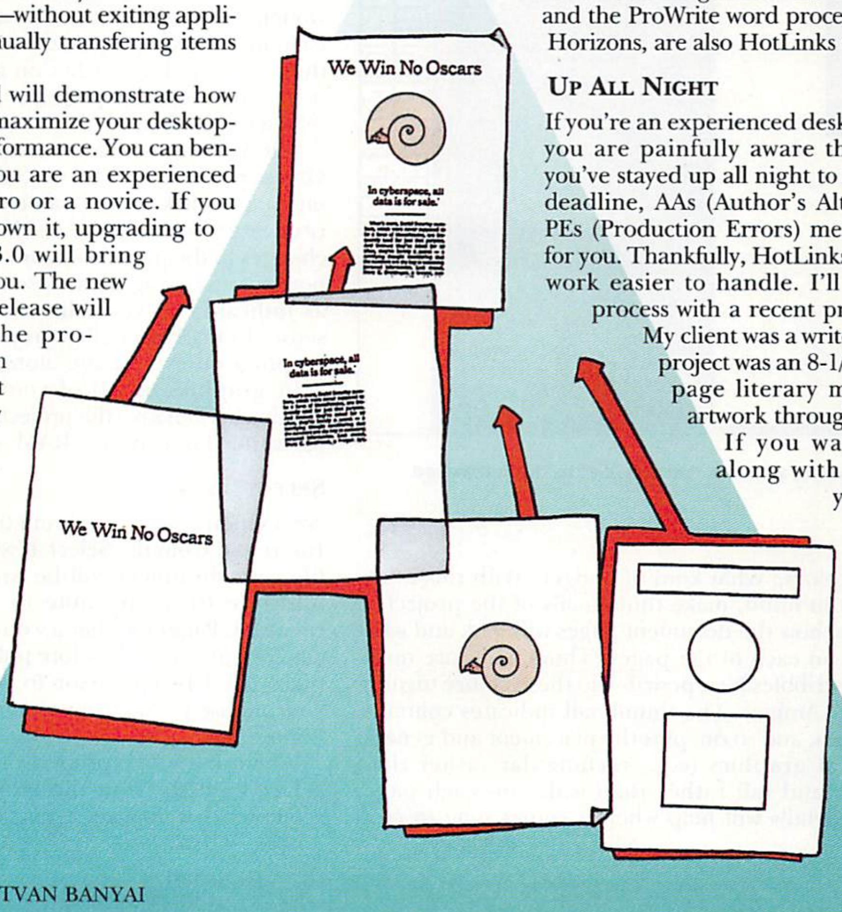
PageStream users can work faster and easier with the help of HotLinks automatic data transfer. Let a professional desktop publisher show you how.

By Patricia Zabka Kaszycki

CHANGE IS INEVITABLE. But it doesn't have to be painful. Soft-Logik's HotLinks automatic data-exchange protocol lets you make difficult changes easily—without exiting applications or manually transfering items between them.

This tutorial will demonstrate how HotLinks can maximize your desktop-publishing performance. You can benefit whether you are an experienced PageStream pro or a novice. If you don't already own it, upgrading to PageStream 3.0 will bring HotLinks to you. The new PageStream release will include all the programs used in this project that were previously sold separately: Not only HotLinks, but also Soft-Logik's BME (Bit Map Editor), and PageLiner text processor.

These are not the only applications that support HotLinks; in addition, Soft-Logik's font editor, TypeSmith, offers supports for the protocol. What's more, Black Belt's Imagemaster R/t image processor and the ProWrite word processor from New Horizons, are also HotLinks compatible.



Up All Night

If you're an experienced desktop publisher, you are painfully aware that even after you've stayed up all night to meet a client's deadline, AAs (Author's Alterations) and PEs (Production Errors) mean more work for you. Thankfully, HotLinks can make this work easier to handle. I'll illustrate the process with a recent project of mine. My client was a writers' group; the project was an 8-1/2x11-inch, 64-page literary magazine with artwork throughout.

If you want to follow along with the process, you will need both artwork and text. For the art, any bitmapped graphics will do. For text, you can use any ASCII- ►

format file, including the public-domain document Lorem Ipsum (a Latin-like text that works great for dummying layouts).

Before you do anything else, gather details from your client: How many pages? What kind of art? How many colors? What kind of budget? With this information in mind, make thumbnails of the project to indicate how the document pages will look and what will be on each of the pages. Thumbnails are quick pencil scribbles (yes, pencil—do these before turning on your Amiga). The thumbnail indicates columns, headlines, and so on, plus the placement and general shape of graphics (e.g., rectangular rather than square, and tall rather than wide) on each page. These details will help when it comes time to crop your bitmapped graphics within the BME program.

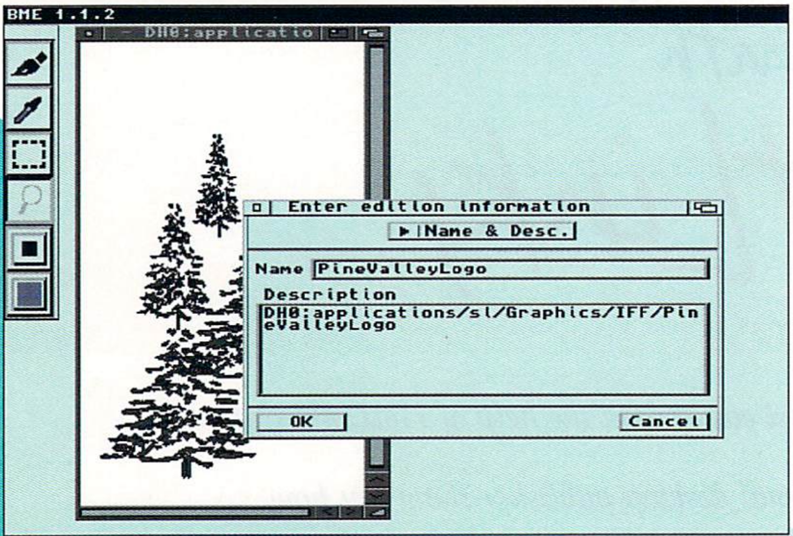


Figure 1: Give your published edition a name that's distinct from your original file.

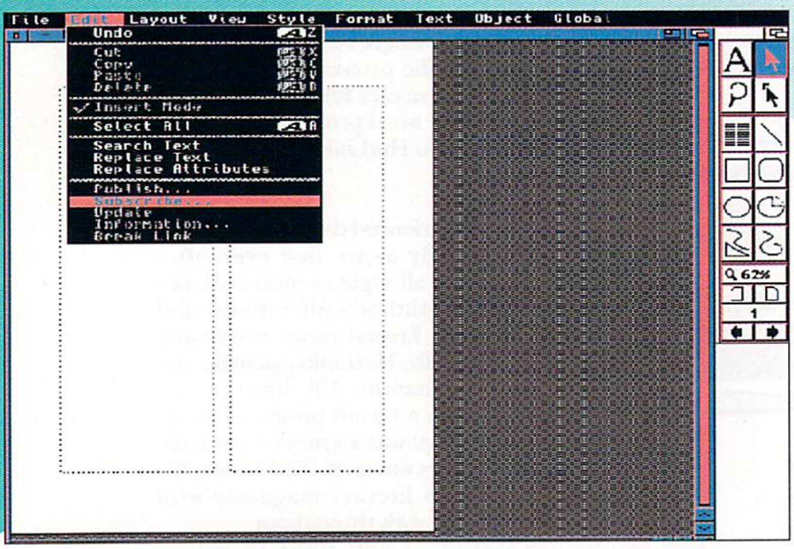


Figure 2: From PageStream, you can "subscribe" to the published edition file you created.

When you're ready with the layout, collect all of the graphic and text elements. Organize them in directories with logical names such as Text, Logos, Line Art, Photos, and so on. Then make sure HotLinks is installed and running on your Amiga (it will launch automatically with PageStream 3.0).

Begin With Bitmaps

I like to begin by cleaning up and cropping my bitmapped graphics within BME, so I open that program next. Follow your thumbnails for an easy guess at the overall scale for graphics.

When you are satisfied with your clean, cropped graphics, select Publish from the HotLinks menu. (Publish is the powerful command that creates the linked copy of your graphics or text; this linked copy is referred to as an edition.) In the Enter Edition Information requester, type a distinct name for your "published" graphic (see Figure 1) and select OK. Now select Save As from the Project menu and type in the name of your file. This will be an original "unpublished" copy of your art. The copy that you have published will allow you to make and then update changes. If you change and update a published edition, however, you're stuck with it. There is no Undo function that will get you back to the original published edition after you have updated it. Protect yourself and always back up a published edition with an unpublished copy. (If you lack the RAM necessary to run BME and PageStream at the same time, you can close BME at this point.)

Open PageStream, select New from the File menu, and indicate the appropriate specs for your project; my Pine Valley document is 8-1/2x11, Portrait, and Double Sided. From the Layout menu select Create Columns. For my project, the margins are one inch on three sides and 3.5 inches on the bottom. There are two columns on each page (the space between them is .35 inch), which are linked on all 64 pages.

Select the arrow icon from the tool box to enter Object mode. Now choose Subscribe from the Edit menu and click on the name of your graphic in the requester (see Figure 2). When the arrow icon changes to the paste icon, move to position the icon's hot spot, and drag the mouse to position the graphic as indicated by your thumbnails or your creative sense. In my Pine Valley project, there are different graphics on every page along with the logo. Place your graphics on all of your document pages as required. Then save the project and close PageStream if you need to conserve RAM.

Select Text

Next Open PageLiner. From the Project menu select Insert and from the Select Text requester choose the file your document will be using. If your text is in multiple files, continue to select and insert as required. PageLiner has a wonderful feature that lets you format your text before publishing it. To use this, place the I-Beam cursor to select your text, move your mouse to the Text menu, and select Font (see Figure 3).

When your text is properly inserted and formatted, select Publish from the HotLinks menu. In the requester that appears, type a specific name for your

published text edition and select OK. Also, save an unpublished version from the Project menu. As with graphics, it's always good to keep an unpublished copy of your text, especially if the text originated from multiple sources. If you render the published text edition unusable, you will still have a master copy to open and publish again.

From PageStream open your project file. Select Text mode from the tool box (the Text tool will be highlighted and the blinking cursor will appear in the column box). From the Edit menu select Subscribe, and from the requester select your PageLiner Edition file. The text will flow into the PageStream document.

If you have not already done so, select the appropriate information for your printer from the Configure Printer requester. Then, from the File menu, select Print. If you find no mistakes on the printout, make another copy of the project for yourself. If you're lucky, your client will say that all is well and you'll be ready to bill for a job well done. More likely, though, the client will want changes.

The More Things Change...

With my Pine Valley project the client said, "The layout looks great, but we would like you to erase the bottom branches on the trees [in the logo]. And can you add a few more pine needles in some of these open spaces?" HotLinks helped me make the changes with ease.

Here's how to do it: Open BME and "subscribe" to the project. Adjust the view for comfort, and select the Eyedropper tool. Pressing the left mouse button, move the eyedropper icon around on the graphic until you find the correct editing color. Click, select the paint icon, and then click or drag until the corrections are made. Now select Update from the HotLinks menu. From the Project menu select Save As to create an unpublished master of the edited art—again, just as a backup.

In PageStream, open the project file and all the copies of the graphic will be automatically updated.

My client loved the trees, and said, "Great. And one other thing we forgot to tell you about in our original specs. Our name needs to be put on all the pages that begin new stories. See. Just about right here. And just about this big. The Pine Valley Writer's Group."

Back in my studio I opened PageLiner, typed the name of the group and then published it. I then opened PageStream, subscribed to the Name line, and placed it on the required pages.

Just as I finished, the client called. "We hope it's not too late. There's a misspelled word in the information we gave you. The apostrophe in the word Writer's should come after the letter s."

Because I had published the Name line in PageLiner and subscribed to it in PageStream, fixing the typo was easy. I simply opened PageLiner, subscribed to the Name line text and typed the corrected spelling. Then I selected Update from the HotLinks menu and saved the file. Back in PageStream, I opened the project and watched as HotLinks flew through the changes (see Figure 4).

Fast Work

Of course, more AAs came throughout the next two weeks. But because of the user-friendly format of PageStream, PageLiner, and BME, and the remarkable speed of HotLinks, making the corrections was quick and easy.

Indeed, HotLinks is certain to capture your loyalty. While you make the changes that would ordinarily make you steam, HotLinks keeps you cool and free from frustration. Once you use it you won't know how you got along without it! ■

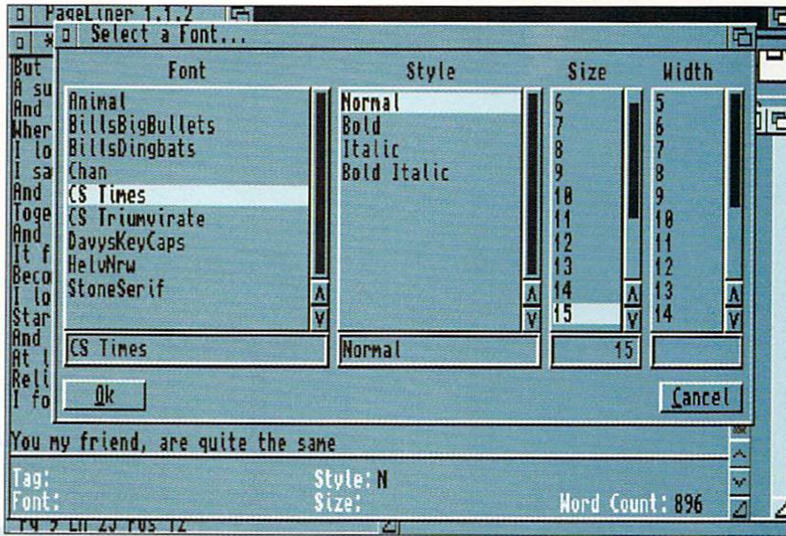


Figure 3: A helpful feature in PageLiner lets you format text before you go ahead and publish it.

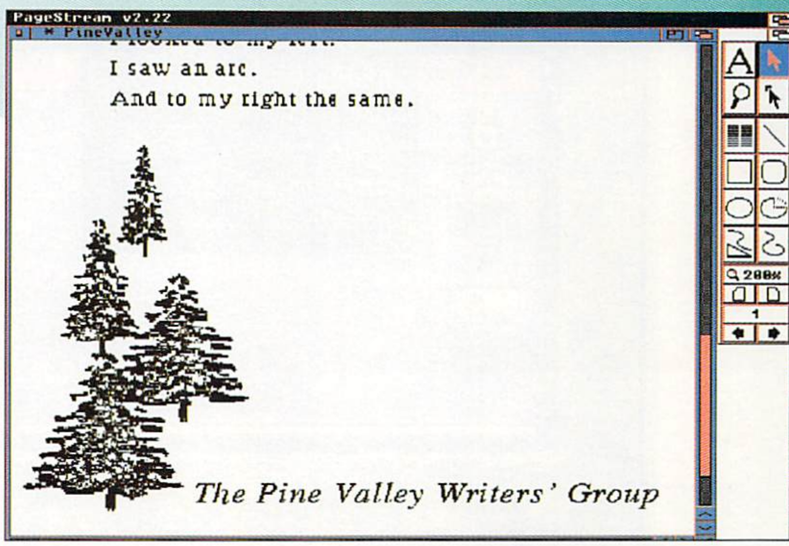


Figure 4: Thanks to HotLinks, you can mind your Ps and Qs—and your apostrophes—automatically.

*Pat Kaszycki, a freelance graphic designer and illustrator, has a Master's degree in Fine Art from the University of Hartford. Although she is Mac fluent, her tool of choice is the Amiga. She has just placed her book **Amiga Desktop Publishing** with an agent; all the illustrations for her second book, **Tales From The Purple Jungle**, were done using Soft-Logik's Art Expression program. Write to her at PO Box 232, Eastford, CT 06242.*

You can't get AGA chips to work in older machines, it's true. But if you try, you just might find third-party products with the AGA-type features you need.

AG

To many Amiga owners, the introduction of the 1200 and 4000 models, with their Advanced Graphics Architecture (AGA) chips, was both a great high and a terrible low. It was exhilirating because, for the first time, you could display more than the original 4096 colors on an Amiga. But it was also a real downer because, also for the first time, you could not transfer the benefits of a new Amiga chip set to any of the existing machines; if you wanted AGA graphics, you had to have an Amiga 1200 or 4000.



More than a year later, there is still no way to install the AGA chip set in your Amiga 1000, 500, 2000, or 3000. But there are ways to get some of the benefits of the new AGA computers without giving up your beloved old machine. Is one of these alternatives right for you? Think about why you want AGA:

• You may be a graphic artist who is looking for more colors and a bigger canvas.

• Perhaps you're a power user who wants a higher-resolution display for applications such as page-layout programs, database managers, word processors, or spreadsheets.

• If you're a filmmaker, you may see AGA as a way to create realistic 3-D animations that play back right from the computer.

• And although most of us view computers as serious tools, some users are honest enough to admit that all they want to do is to play AGA-specific games.

Fortunately, AGA alternatives—affordable hardware/software combinations—exist

A Fixes

By Sheldon Leemon

for each type of user. Let's look at the options—by user type.

Artistic License

One of AGA's main attractions is more colors; for the graphic artist, that translates to more-realistic displays. The AGA chip set can display up to 256 colors simultaneously (out of a possible 16.7 million) in all of the old palette-mapped modes. It also includes an eight-bit HAM mode that can display up to 262,144 colors at the same time. That's pretty close to 24-bit color, the current standard for photo-quality ("true") color.

Owners of non-AGA machines need not settle for close, however. These days, a number of reasonably priced display cards for the Amiga 2000 and 3000 series can give you full 24-bit color (in theory, up to16.7 million hues simultaneously). Choices include ***Centaur's*** **OpalVision** ($699), the **Retina** from ***MacroSystemUS*** (from $599), ***Expert Services'*** **Picasso II** (from $549), ***GVP's*** **EGS Spectrum** (from $499), and the **Merlin** board from ***Spectronics*** ($799). (Note that DKB no longer provides US distribution of the Piccolo board, which also fits this criteria. DKB does, however, plan a spring release of its own low-cost board that will use the same EGS software as Piccolo and Spectrum.) Each of these products comes with its own custom 24-bit paint package. Because these programs are designed specifically for their respective boards, they are not available for stock Amigas—not even AGA machines.

In fact, the most highly acclaimed 24-bit paint packages for the Amiga require one of these boards. ***Tecsoft's*** **TV Paint Professional** ($399 from MacroSystemUS), the most widely known of the 24-bit paint programs, is available for the Retina, Picasso II, and EGS Spectrum cards. It features a wide variety of drawing styles, splendid paint-mixing and transparency options, full ARexx control, and lots of gradient and stencil options.

And although TV Paint won't run with OpalVision, the OpalPaint program that comes with the board is distinguished in its own right. It was the first Amiga paint program with brush textures such as chalk and pencil and paper textures such as canvas; it was also the first to include brush tolerances, letting you pick up an area of similar, but not identical, colors. Both TV Paint and OpalPaint also support pressure-sensitive drawing pads.

In addition to offering more colors, most of these boards let you display a larger drawing area as well, given an appropriate monitor. The Picasso II and EGS Spectrum can produce 24-bit displays in sizes up to 800x600. Merlin's 24-bit display allows up to 680 horizontal resolution, and the 4MB version of the Retina card provides a 24-bit display as large as 1024x768. Most of these cards also provide even larger displays using 16-bit color (65,536 hues). This extra screen size can come in very handy when you are preparing artwork for print, where resolutions are typically much higher than the standard computer display; it is not uncommon to work with images as large as 2400x3000 pixels.

You can convert the output of most of the 24-bit display boards to a television signal by using an NTSC or PAL encoder. Video updates or options are promised for several of these boards, including Retina and OpalVision.

Artists whose main interest is creating television graphics, however, may want to consider a video-only device. On the low end of the price scale, there is ***Digital Creations'*** **DCTV** (about $300), a box that converts the Amiga video signal to television-style composite video with millions of colors, which you can record directly on your VCR. Because DCTV is an external box that plugs into the 23-pin video port, it works with any Amiga model, including the 1000, 500, and 600. DCTV comes with DCTV Paint, an excellent program that lets you either create images from scratch or modify video images you capture with the unit's built-in digitizer.

For professional video artists (or those for whom ►

price is no object), there is the **Video Toaster**. ***NewTek's*** hardware/software combination (about $2400) is more than just a display board, of course, but among its many talents is the ability to provide a broadcast-quality video display of computer art. The ToasterPaint program that comes with the package is a bit dated, but still sufficient for creating art from scratch or for modifying images captured with the Toaster's built-in frame grabber.

In any case, artists wanting lots of colors can get more through third-party products on an older Amiga than from an AGA system alone. To decide which of these options makes the most sense, consider the type of output you want and the amount of money you can spend. Printed output, for example, uses the biggest bitmaps, so a board like the 4MB version of the Retina, which gives you the most colors at the larger screen sizes, would be the obvious choice. For television art, you'll want a solution that provides an output you can tape on your VCR, which means either DCTV for a couple of hundred dollars, the Toaster for a couple of thousand, or OpalVision for somewhere in between (assuming that Centaur makes its composite adapter available in the near future). If you are primarily interested in the type of computer pictures that can be displayed on your screen, however, any of the boards mentioned in the following section should do nicely. You may want to review their proprietary paint software as a way of choosing.

Power Play

For the power user, too, AGA means more color on a larger screen. Where business software is concerned, the 24-bit boards provide everything AGA does, and then some. That's because in addition to the 24-bit displays at lower resolutions described above, the Retina, Picasso II, Merlin, and Spectrum boards can also provide displays at sizes upwards of 1280x1024, with up to 256 colors.

Unlike the first generation of 24-bit boards, the latest models don't need specially designed productivity software. They can run a wide range of existing applications on hi-res screens, thanks to some system software tricks. Workbench emulation plays a big part in the strategy. All of the 24-bit boards mentioned here come with software that lets you open the Workbench in any of their expanded screen modes (though all but the Retina restrict you to 256 colors on the Workbench). This means that any word processor, spreadsheet, desktop-publishing program, or database manager that can open on the Workbench screen is guaranteed to work with these boards. The Retina board actually goes one step further in mode-promotion. Its program includes an AGA-emulation option that fools applications into thinking you have the AGA chip set. It is one of the few boards that can run DeluxePaint IV on its 256-color screens—albeit fairly slowly.

> *"There are ways to get some benefits of AGA without giving up your old computer."*

Since not all programs will open on the Workbench, however, most of these boards provide a way to coax existing applications to open on their screens. The Spectrum and Picasso II boards, for example, come with software that registers their screen-mode information with the system's display database, so that newer applications that let you use the standard requester (like the one in AmigaDOS's Preferences ScreenMode program) to select a screen mode can take advantage of whatever new modes these boards offer.

In addition, most 24-bit boards include software that functions like the Mode Promotion option in AmigaDOS's Preferences IControl program. Simply put, whenever an application tries to open a screen of a particular mode, the promotion program steps in and changes it to another mode. That way, you can get a desktop-publishing program to open a screen on a 1024x768 display, or a 1024x768 scrolling screen on an 800x600 display.

Mode promotion doesn't work with all applications, since some programs, particularly those that are graphics-oriented, react badly to surprises such as a bigger screen or more colors. But for the most part, recent business software works well on these larger custom screens.

Some applications support 24-bit boards directly. Likewise, most of these boards come with drivers for image-processing programs such as ***ASDG's*** **Art Department Professional** and ***GVP's*** **Image/FX**, as well as 3-D graphics software, including **Real 3D** (***Realsoft***). Even the Macintosh emulators **Emplant** (***Utilities Unlimited***) and **A-Max** (***ReadySoft***) support these boards for use as 24-bit Macintosh displays.

Amiga users can actually get larger displays using the alternatives as opposed to AGA. All of the recent 24-bit boards function pretty similarly, and all do an excellent job. This makes choosing between them tough, but it also means that you probably will be satisfied with whichever one you select. We'll provide more details on these boards in a roundup next month, after we've had a chance to compare them in depth.

A Moveable Feast

One of biggest selling points of the AGA machines is their ability to animate near-photographic displays at a speed approaching 30 frames per second, at a time when even the hottest '486 PCs are stuck with animating 256-color images in quarter-screen windows at 10 or 15 frames per second. The secret lies in AGA's HAM8 mode, which uses hardware compression to give you 18-bit color for only eight bits of data. This built-in feature gives the AGA chip set a distinct advantage over 24-bit boards. While some boards come with animation software, none can animate as large a window as AGA can, at as fast a frame rate.

But if you don't mind having recordable composite video (as opposed to computer RGB) output, there are

two alternative methods for producing real-time animations.

The inexpensive option is Digital Creations' DCTV. Since this box takes its display data from the standard Amiga video system, it can show both pictures and ANIMs stored in standard Amiga file formats. DCTV's hardware transforms medium-resolution, low-color animation data into a low-resolution, high-color animation of television quality that plays back at rates of up to 30 frames per second.

DCTV comes with software that converts single 24-bit frames (such as those produced by 3-D animation software) to its own compressed format, and you will also find both commercial and shareware programs that can compress a series of 24-bit frames into a DCTV animation file. Because of the low cost of both DCTV and the Amiga systems on which it will run (even an A500 with enough memory will work), this device is a favorite among animators looking for acceptable results at a rock-bottom price.

For those with lots more money to spend, there is ***Digital Processing System's*** **Personal Animation Recorder** (PAR), an animation system that provides a far better solution than even AGA ANIMs. This plug-in card plays back 24-bit animations from a dedicated hard drive at 30 frames per second. The board comes with its own high-quality composite-video output, and even offers component video output for professionals using digital and Betacam formats. When combined with DPS's TBC IV card, PAR can also capture sequential frames from an external video source. This opens up the possibility of creating moving morphs and other exotic special effects.

Although PAR is not inexpensive (about $3000 with the special high-speed drive required), it still costs far less than other high-quality solutions, including frame-accurate VCRs and single-frame controllers, digital disk recorders, and recordable laser discs.

For professional animation work, an older Amiga equipped with PAR is better than an AGA system. With its fast processor and bus, however, AGA is a better low-cost solution than a pre-AGA machine with DCTV—unless you've already invested in an accelerator.

Fun and Games

The latest 24-bit graphics cards, as we have seen, may be pretty good at running AGA productivity software, but, alas, they do not fare as well with AGA-specific games. The reason is that many arcade-type games boot right from the floppy disk, without ever loading up the Workbench environment. Well-behaved games that you can install on a hard drive and load from a Workbench icon may run on the 256-color screens of some graphics cards, but AGA games that need to boot from a floppy don't stand a chance of working on non-AGA machines. If you want to run these kinds of AGA games, you'll simply have to have the AGA chips.

Still, there are a couple of alternatives to selling your old machine and buying a new one. Amiga 500 owners, for example, may want to consider ***Copperhead Technologies'*** **AGA Upgrade Kit**—an Amiga 1200 motherboard, specially modified to work with your Amiga 500 keyboard.

To get the motherboard to fit, you'll have to trim away various parts of the A500's plastic case. Although that's not a difficult job, the result isn't pretty. Since you cannot screw the motherboard down to the case, you'll have to settle for double-sided tape. It isn't the most mechanically stable arrangement, either, and plugging cables into the machine's rear ports is hard. Nor is the unit properly shielded, because you cannot fit the metal RF panel back on after installing the new motherboard. (The FCC would definitely not approve.)

Although Copperhead states that you can use both the A1200 "trap-door" expansion port and the internal hard-drive connector, it isn't as easy as with an A1200. You can probably find space for a 2.5-inch hard drive inside the case, but there's no really secure place to mount it. And when I tried to plug the DKB 1202 memory board into the expansion port, it bumped into the mounting post for the floppy drive—more surgery would be required to make it fit.

"While CBM has been updating the Amiga, third parties have not been sleeping."

Still, some owners may be able to live with the drawbacks in order to save $100 to $150. (The upgrade kit is $273 with shipping, or $248 if you trade in your A500 motherboard, while a new Amiga 1200 runs just under $400.) For those who prefer the neater solution of an Amiga 1200 in an A1200 case, it may make more sense just to sell your A500 for $100 and buy the new computer.

Or, instead of selling your old system, how about buying a complementary game machine? By the time you read this, Commodore's CD32 should be widely available. For about the price of an A1200, the CD32 will give you not only AGA capability, but a CD-ROM drive as well. Though it's still a little early to start talking about expansion products for CD32, you'll probably be able to hook the unit up to your computer and share the CD-ROM drive between machines.

While Commodore has been busy updating the Amiga product line, third-party manufacturers haven't been sleeping—they've been bringing out lots of products that help older Amigas keep up with "new-generation" AGA machines. Besides those mentioned, we've even heard of a freely distributable software AGA emulator called Soft AGA. We could not track down a copy to test, but sources say it is not yet viable. Still, with all of the various expansion and update alternatives available, the question is no longer "Can I do it?" but "What shall I try first?" ■

*Sheldon Leemon, a computer/video consultant and instructor, is the author of two books and scores of articles covering the Amiga. He is currently writing a third book, concerning the Video Toaster, and is Forum Manager for the Amiga area on National Videotex Network. Write to him c/o **AmigaWorld**, Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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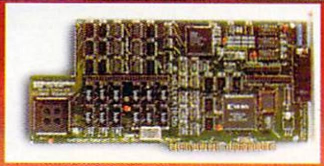
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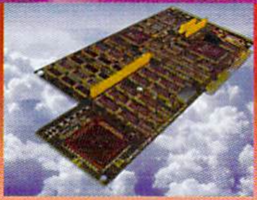
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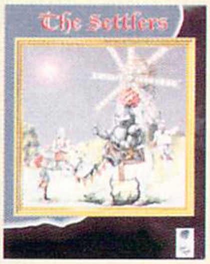
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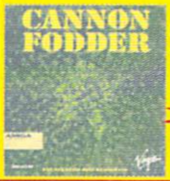


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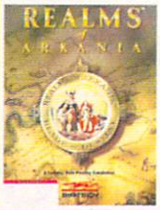
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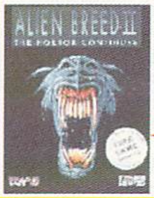
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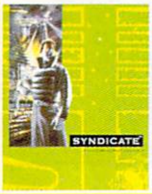
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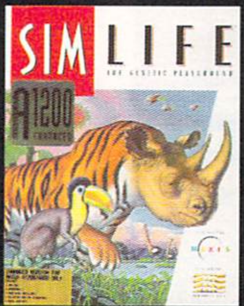
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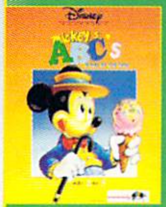
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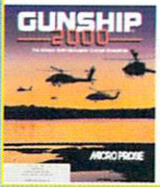
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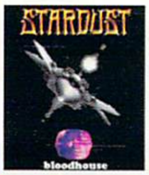
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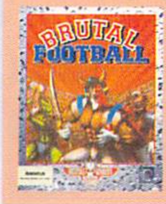
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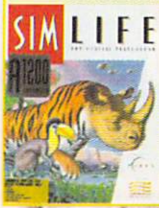
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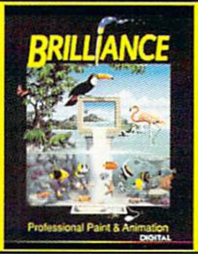


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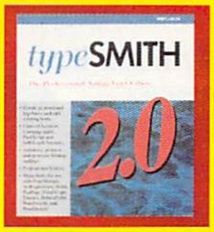
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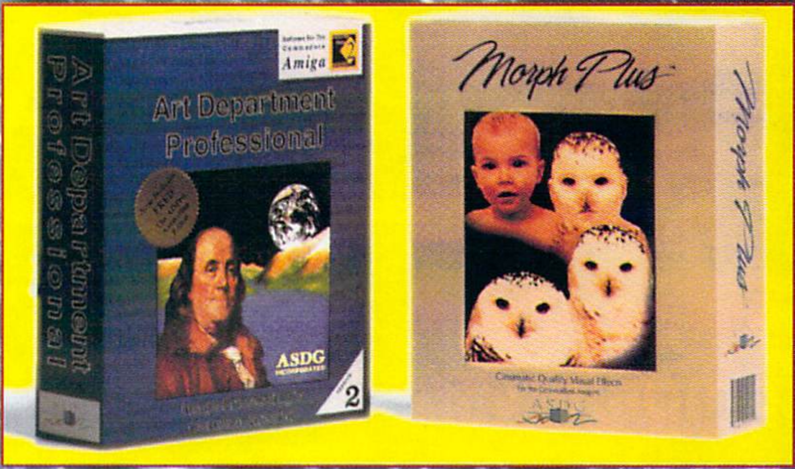
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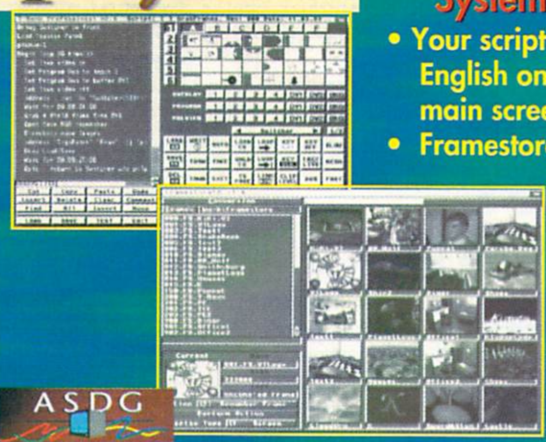
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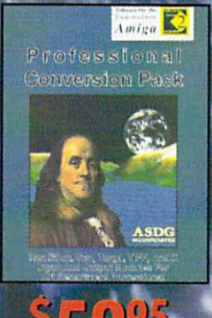
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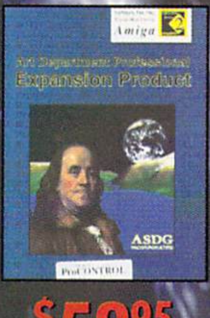


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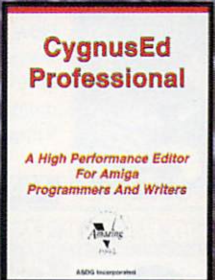


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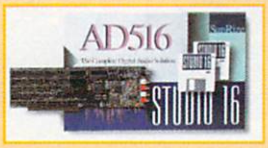
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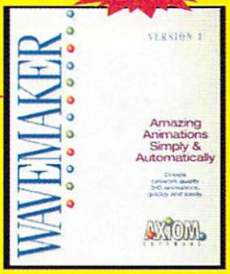
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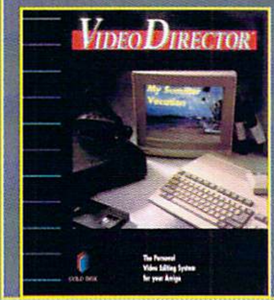
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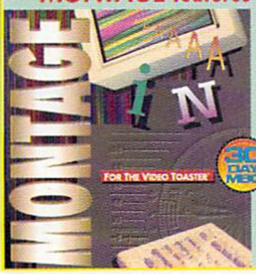


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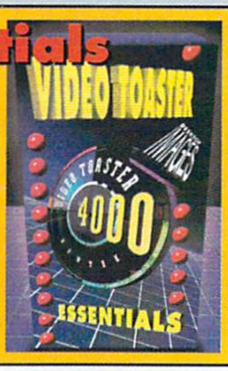
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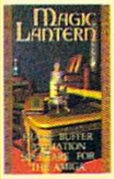


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ACCENT ON GRAPHICS

Stretching Your Animation Mileage

62

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

ONE OF THE limiting factors in producing animations against a deadline is the large number of frames required for even a few seconds of running time. This beginner's column will explore some basic principles that can help you extend the mileage of your animation efforts, making ten frames do the work of a hundred.

Recycle Those Frames!

Understanding the concept of creating cyclic motion is fundamental. For example, to animate a spinning planet you need only create one full rotation. That motion cycle can then be played in an endless loop. The time invested in a few frames can yield many seconds of animation.

From the standpoint of the number of original frames required, reciprocal motion is even more efficient than cyclic motion. One complete reciprocal motion consists of a sequence of frames run forward then backward in what is often called a ping-pong motion. For a waving cartoon character, you might draw only six frames of the arm moving from left to right. You can play those same frames in reverse to have the arm wave from right to left. Then loop that cycle for as long as needed.

Computer artists can take advantage of animbrushes in DeluxePaint (Electronic Arts) and other programs to further increase animation mileage. A brief motion cycle can be used as a repeating animated brush in a longer animation, even moving through space as it loops. Applying animbrushes to the concept of cyclic motion, you might create a single walk cycle for a character in 10 frames. You can then use it as an animbrush in a 100-frame animation to have the character walk smoothly across the screen. Applying the same idea to reciprocal motion, you could have a bird flap its wings as it flies across the screen. You might draw only six frames of the wings moving from their down position to their up position. Then set this animbrush automatically to "ping-pong" for the full up-and-down cycle.

By modifying a reciprocal motion you can add character to a sequence. For example, the bird might look more realistic if its downward flap was faster than its upward flap. Pick up the six-frame upward flap as an animbrush and then create a blank eight-frame animation. Stamp the six cels of the animbrush in place on the first six animation frames. For the next two frames, manually locate two intermediate cels of the animbrush to create a swifter downward movement. (In DPaint, the 7 and 8 keys move you backward and forward through the cels of the animbrush.) You now have a cyclic eight-frame animation that can be picked up and used as an animbrush.

These basic techniques are effective ways to stretch the running time of your work, but repeated motion can have a predictability that loses the viewer's interest. You can address this problem either by interrupting a looping cycle or by having a repeating cycle affect its surroundings. As an example of interrupting a loop, you could have the flapping bird fly across the screen as described but insert a glide in the middle of the sequence. This could be as simple as repeating a single cel from the middle of the flap cycle for several frames before returning to the flap loop. No extra drawing is required and the character of the animation is enhanced.

If I Had a Hammer...

To experiment with the idea of a cyclic loop affecting its surroundings, you might go through the stages of creating the "Sculptor" animation as shown in the accompanying illustration. The plan is to create a reciprocal motion of a sculptor striking a chisel. Repeated blows gradually transform a large block of stone into a finished sculpture.

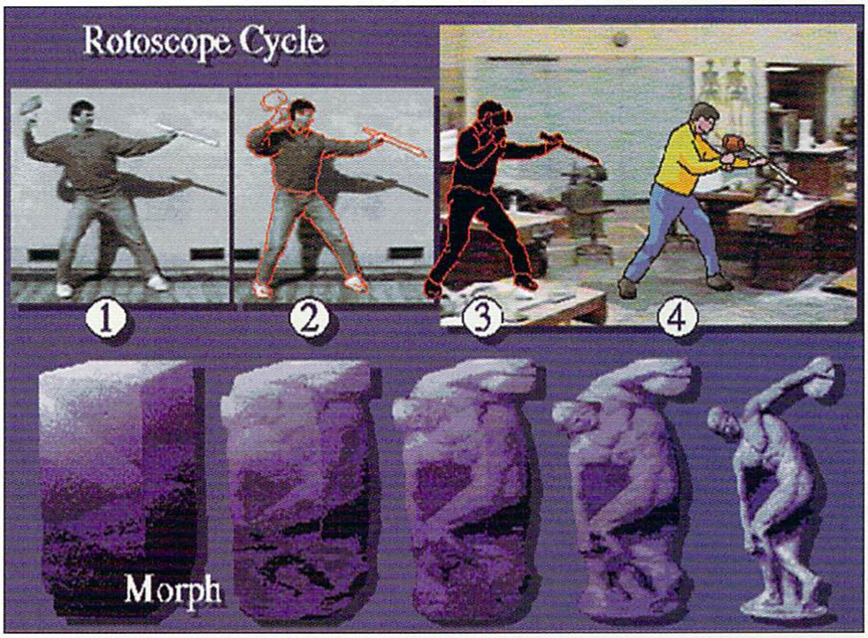
If you have a digitizer, you might try "rotoscoping" the character by drawing directly on successive photographs. You could pose a model for each position of the movement and digitize straight into the computer. Lacking a model, I posed in front of a video

These sure-fire tips will help you get more out of your animations while spending less time and effort.

camera using cardboard props for hammer and chisel. Later, I used GVP's IV24 to capture the frames from tape as shown in #1 in the illustration. Black-and-white is adequate for rotoscope reference. If you have numbered your frames sequentially, they can be batch loaded from DPaint's Picture Load menu and then saved later as an ANIM. Create a line drawing directly on each image, as shown in #2, using a bright color not present in the photos. Next, using the Stencil feature, lock the line color and then clear all frames to leave clean outline drawings as in #3. Use Fill and Draw tools to color the character. As described for the flapping wings, you can reuse a few of the backswing frames to create the faster striking swing. Saved as an animbrush, this sequence will eventually be added to a background as shown in #4.

Before adding the character to the background, create the sculpture. Draw, scan, or digitize both a finished sculpture and a raw block of stone. Next calculate how many hammer blows you will use to complete the sculpture. This may be dictated by the desired run-time of the sequence. As a simple example, if you want 10 seconds of animation at 15 frames per second and there are 15 frames in one hammer cycle, you need 10 hammer cycles. You need one modification of the block for each hammer cycle, with the final modification being the finished sculpture.

An easy way to do this is to morph the block of stone into the sculpture. You could use any of the specialized morphing programs, but you may find that DPaint's own brush-morphing capabilities are adequate for this project as long as both objects have distinctly different shapes. Pick up the stone block as a brush and press Alt-n to move it to the "spare-brush" buffer; then pick up the sculpture as the second brush. Press Alt-m for the morph requester. Enter the total number of desired cels (in our example enter 10—one for each hammer cycle). The computer now acts as your assistant and creates a 10-cel animbrush from your two keyframes.



In "Sculptor" (above), rotoscoping is used in 1–4 to create a cyclic motion of a sculptor at work. DPaint's brush morph transforms the unfinished block into the finished statue. Only 20 frames were used to create 10 seconds of animation.

Set up a new animation with just your background image. It should have the same number of frames as there are cels in the sculpture morph (10 in our example). Stamp the sculpture-morph animbrush into the scene to create a 10-frame animation. Next, modify that animation to accommodate the repeating 15-frame animbrush of the hammer cycle. To do this, add 14 frames to each of the 10 frames of the sculpture animation. Now place the hammer cycle animbrush in the scene so that the chisel appears to strike the block of stone. Using DPaint's Move requester with all settings at zero, you can stamp the animbrush in place over all 150 frames.

Playing the animation, you'll see that the sculpture changes a little at each blow of the hammer until it is complete. As a final touch, add a little spray of dust with the airbrush tool for two frames each time a blow is struck. A translucent shadow helps fix the figure and sculpture to the ground. This visually complex 10-second animation required only 12 original frames—10 hammer positions and 2 sculpture keyframes. The morph provided 8 additional frames. Variations on this idea could be used to reveal rendered 3-D logos and titles.

Developing a clear methodology is critical to becoming a skilled animator. You can increase your productivity if you learn to analyze a project at the outset. Look for innovative ways to use cyclic motion and devise your own techniques for stretching animation mileage without sacrificing visual interest or quality. ■

Write to Joel Hagen at 10512 Sawyer, Oakdale, CA 95361. Include a stamped, self-addressed envelope for a reply.

From p. 19.

A Font Is Born

TypeSmith 2.0 lets you create the actual font outlines and font metrics (character widths and spacing) simultaneously. If you prefer, you can create the outlines only, then merge them with a previously created metric file. The AutoMetric feature does most of the dirty work of metric-file creation for you.

You can decide between proportional and nonproportional spacing for numerals, set the width of the space character, and determine the percent of tracking between characters. To make changes to individual character metrics and kerning, use the Metrics requester. You can create and preview kerning pairs from scratch or load them from a previously saved file.

The Font Attributes requester sets everything from assigning the font name a unique ID to the position and thickness of character underlines. The Font Dimensions requester lets you set the bounding-box dimensions and character guides.

You load Soft-Logik outline fonts directly, while with PostScript Type 1 and Compugraphic Intellifonts, you import and then convert them to TypeSmith's native format for editing. You load and save all fonts separately from their metric files, except for Intellifonts and PostScript Type 3 fonts, which maintain all font information in one file.

TypeSmith 2.0 loads PostScript Type 1 Hybrid fonts as well, giving you the option to open the font in hi-res or lo-res. You can export in three formats: Type 1 fonts using TypeSmith or Adobe Standard encoding (including those with hinting) and accompanying MS-DOS, Amiga, or Windows metric files; PostScript Type 3 format; and Intellifont format (with or without Gold Disk .dat and .metric files).

TypeSmith 2.0 loads and saves individual characters—in addition to full font sets—in the IFF DR2D format standard for structured drawings. A Print Preview menu prints the character that you are working on in any resolution that your printer supports. It can appear as an outline or filled character, in any point size or orientation.

When it comes to designing fonts, options and aids abound. Rulers, character guides and a user-definable grid are there to help. You can snap your points and paths to the grid and set the horizontal and vertical character units. Characters can be displayed filled or unfilled. You can use Amiga or Soft-Logik bitmap fonts, a PostScript screen font, or any IFF ILBM file as a template. TypeSmith 2.0 can make a "best-guess" at fitting a character into the window, and you can open multiple windows, displaying a character at any stage of design. A Type Preview window displays text using the current font, character spacing, and kerning tables. Selecting Update from the Project menu updates the preview window.

You can work with subsets of a complete character set with the Character Overview panel, and TypeSmith 2.0 opens a new edit window for any character on which you double-click. You can cut, copy, and paste characters and manipulate them in a variety of ways, with the Undo command as a handy toggle that flips between the current and last edited version.

Paths To Characters

Outline-font design requires the use of structured-drawing-like Bezier curves, lines, ellipses, and boxes. Once a basic shape is drawn, it becomes a path that you can move, skew, scale, rotate, flip, and duplicate. Structured-drawing rules apply to font design, as you can constrain the Box and Ellipse tools to squares and circles by holding the Shift key while dragging. When you're using bitmaps as templates, all font-character paths must be closed to ensure that all characters in a typeface can be filled.

TypeSmith 2.0's point-editing tools remain ghosted until two points have been selected. You can then insert and delete control points, join two previously unconnected points, and convert a straight line to a curved line (or vice versa). The option to change the path from clockwise to counterclockwise (or the opposite) ensures proper orientation for filling fonts. You can cut and paste paths and points in the same way you edit characters.

Bitmap fonts can be generated in Amiga, Soft-Logik and PostScript formats. Editing bitmaps is a matter of clicking in squares in a grid to approximate the shape of the character, then saving in any of the supported formats.

TypeSmith 2.0 composite-character support allows you to reference individual characters and combine them into a new character without actually loading and combining the referenced parts. Through a system of up to eight pointers, TypeSmith 2.0 lets you create letters with accents or multiple graphic images for dingbats and other particulars. Composites cannot be edited, however; rather, you must edit the base parts.

Minor Maladies

TypeSmith originally produced unexpected results on my laser printer. The Type Preview menu produced tiny output, while the Print Preview feature didn't work at all. However, a quick switch from PostScript to the HP printer driver in Preferences produced flawless output.

While TypeSmith 2.0 supports many of the outline-font standards, licensing fees make it cost-prohibitive to support the popular PC-compatible TrueType format. Also, support for the IFF.DR2D standard is laudable, but how about some other common structured-drawing or CAD formats, like those of Pro Draw? Additional keyboard equivalents wouldn't hurt, either.

Amiga font designers and those with an occasional need for outline-font editing and conversion will be in font heaven with TypeSmith 2.0. It stands alone in its market niche, but more importantly, it is genuinely well crafted in nearly every respect.

—Rick Manasa

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A Tale of Two Interfaces

MediaPoint sports an unadorned, icon- ►

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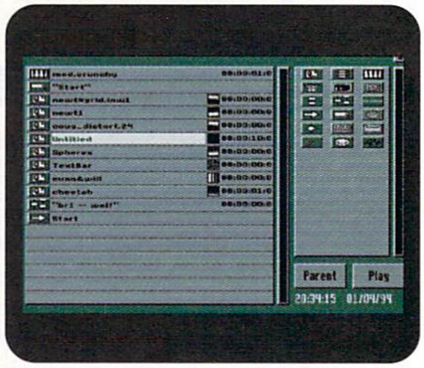
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based interface. To create a presentation, you simply drag icons that represent such multimedia tools as graphics, sounds, and laserdisc tracks into a listbox displaying the order in which they're accessed. Some of the icons represent gadgets called Xapps (pronounced "zaps"). These are external applications that MediaPoint calls on for capabilities that aren't in the main program. Xapps allow you to control such devices as CDTV (and CDXL animations), IV-24, MIDI, Studio 16, and a variety of laserdisc players. New Xapps can be easily added, too.

MediaPoint has a second interface that lets you create "pages" to add to scripts. The page editor allows you to design custom screens of graphics and text. Each page can have any number of draggable, resizable windows. Windows can become buttons for interactive presentations or can move around the screen using transition effects.

Pages are saved independently of scripts, so you can incorporate a page or group of pages into any number of different scripts. Likewise, graphics and sound aren't embedded in presentations, which means the script files stay quite small. If you need to copy the presentation to another system, MediaPoint includes a "mover" utility to copy the script's related data to a new location, such as a series of floppies or a Syquest cartridge.



MediaPoint's presentation assembly line is largely point-and-click work.

MediaPoint does many complex things, and does them well. You can play animations (including Anim5, Anim7 and Anim8) from memory or directly from the hard drive. It lets you try your hand at synchronizing your presentation to MIDI or music modules (MODs), perform AmigaDOS and ARexx commands as script events, and even build interactive presentations that branch according to user input.

More than in any other respect, however, MediaPoint's strength lies in its transitions. You can perform transition effects on full-screen graphic images, MediaPoint pages, and even windows within pages. Users of PC-based packages like VideoShow will shake their heads in disbelief at the sheer volume of transitions in MediaPoint—more than 80 page effects and another 40 window transitions, plus variations based on pixel size and playback speed. Graphic windows can spin, fly and ooze onto the screen, and pages can push up or down and overfly the display, snapping back into place at the last moment. All of the effects are professionally designed. Despite all these features, MediaPoint falls somewhat short of being a definitive CG solution through its inability to do a credit roll. A technical-support representative indicated, however, that a credit-roll feature will appear in future versions.

Made for TV

MediaPoint was clearly designed for the

needs of cable-TV information channels. A sophisticated scheduling option allows you to run a script between any two dates, on arbitrarily chosen days of the week, during any block of time. You can even segment a script into different time slots, so that certain pages will be displayed only on specific days.

Users of earlier versions of MediaPoint couldn't leave their script unattended, because a presentation couldn't recover from a crash or power outage on its own. A ten-second delay in MediaPoint 3.6 offers a partial solution and a forthcoming remote access module will fully correct this shortcoming.

MediaPoint is brimming with conveniences: The file requester offers thumbnail views of graphic images; a timecode tweaker automatically distributes script events along a timeline; and tools in the page editor make it easy to duplicate windows and position them precisely on the screen. MediaPoint even lets you advance pages at the press of a key—like Elan Performer—and records your timing, making it easy to synchronize a presentation to the downbeat of a musical score. Lastly, this is the first program I've seen of any kind that supports Workbench 3.0's datatypes.

What's the Xfer?

Despite the wealth of transitions, there's no preview button. To see the effect of a transition, even just a minor change near the end of a presentation, you must highlight the page and then press F to play forward. I discovered that you can disable every event in a script except the effect in question by scheduling everything else into the past or future—not elegant, but another solution. Also, it is possible to assign sounds to a presentation, but button-clicks have only a single default beep. An "Xfer" menu on the script-editor screen is undocumented—MediaPoint says it's for a soon-to-be-released remote-access module.

These problems aren't crucial, but they are signs that the program is not fully mature. To be honest, I was astounded by the power MediaPoint offers: Rarely does a program perform so many things flawlessly. Despite its shortcomings, I can't think of a better single tool for video and multimedia presentations.

—Dave Johnson

SAS/C Development System with C++, Version 6.50

SAS, $395 ($69 upgrade from SAS/C 6.x; other upgrade offers available)

Hard-drive installable.
Not copy protected.
1.3/2.0/3.0 compatible.
Accelerator compatible.
***Minimum system (C):* 1MB RAM, dual-floppy drive.**
***Recommended system (C):* 2MB RAM, hard drive.**
***Minimum system (C++):* 4MB RAM, hard drive.**

Development system for C, C++ and assembly-language programmers.

Amiga programmers have seen SAS/C (originally called Amiga C and Lattice C) evolve with the Amiga since the beginning, when it was a PC-based cross-compiler. As testimony to its versatility and power, Commodore's software engineers used SAS/C as the ►

tool of choice to create most of the Amiga's operating system ROM and disks. It has proven to be a reliable program that generates correct and efficient executables from C source, and the manufacturer provides excellent support through phone, fax, and electronic mail.

Programming Pleasures

The package includes a C compiler, C++ translator, assembler, linker, text editor, debugger, make utility, find utility, and many other tools. More than 1500 printed pages and over a megabyte of AmigaGuide files document the compressed contents of six floppy disks. A handy script for Commodore's Installer program makes installation easy. I noticed, however, that while the default process is to install upgrades to the same location, page 4 of the manual advises: "If you are upgrading from a previous version, you should install Version 6.50 in a separate location from previous versions of the compiler."

The level of integration between the major tools, especially in the graphical environment, is impressive. Since Version 5.0, the SAS/C Development System has allowed you to work in a graphical environment through Workbench, or, if you prefer, in a more traditional text-based Shell environment. Under the graphical environment, which has improved with each subsequent release, you use SCSetup to create a new project drawer. This drawer contains icons to set compiler options (scopts), to debug (CPR), to build (smake), to edit, and to find. After you use the editor to enter a program, double-clicking on "Build" runs the compiler or assembler and linker on your new file(s).

SAS has significantly improved SE, its text editor, but if you'd rather use another editor, you can configure SAS/C accordingly. Included packages of macros and configuration files can integrate ASDG's CED or Oxxi's TurboText in place of SE. You can set compiler options so that errors in compilation bring up a scmsg (SAS/C message) window with a list of the errors. Double-clicking on one of the errors invokes your editor and brings the cursor to the line containing the error.

When you have a successful build, you can execute the code by double-clicking its new icon, or you can single-step through the code by double-clicking the debug icon. Smfind, which is new to 6.50, allows you to search any files for a pattern and displays instances of that pattern in the scmsg window. Again, you can open your editor and jump to the right spot by just double-clicking one of the displayed items. I thought that such a graphical environment wasn't suitable for professional development work, but Version 6.50 changed my mind.

The SAS/C Classroom

Although the graphical interface is easy to understand and to use, I experienced some difficulty. With Chapter 1 of the SAS/C manual as your mentor, you're led through the process of starting a project, entering a program, compiling the code, debugging it, and so on. Both the procedures for the graphical and Shell interfaces are covered. Unfortunately, it skips back and forth between how to do things in general and how to do them for an example program.

At several points, I went ahead and performed a procedure, only to realize

later that I should have done it differently. The example should stand alone as a list of steps to follow. Further, the on-disk example programs don't exactly match the text of the manual. Finally, I had to tangle with a serious bug that appears in the 6.50 version of SCSetup. As its name implies, SCSetup sets up a new project in its own drawer; but I discovered that while it works fine from the Shell, it does not work from the Workbench. SAS recommends the 6.3 version of SCSetup for the Workbench environment.

Like most development systems, SAS/C lacks a programming tutorial, so if you don't know how to program in C/C++, you must look elsewhere for help. The SAS/C manual recommends several reference books on C, C++, and M680x0 assembly language, but does not recommend suitable material for learning programming.

CFRONT PROPERTIES

The 6.50 upgrade is worth buying just for its enhancements as a C development environment. On top of that, though, SAS has added a C++ translator to the package. Viewed as a bonus, this is great, but if C++ is your primary interest in 6.50, you may be disappointed.

The documentation bills the translator as "AT&T CFront 2.1 compatible." That means that 6.50 lacks templates and exception-handling—advanced C++ language features. A bug in 6.50 prevents it from automatically recognizing .cc files as C++ source (you have to give them .cxx extensions). The documentation for 6.50 contains scattered references to C++, most of which appear almost as afterthoughts. More examples and a list of compiler options specific to C++ would be a marked improvement.

Comeau C++ is a licensed port of AT&T's cfront, and it requires, but does not include, a compiler. An Amiga version of the compiler supports current C++ standards. Several programs that work correctly with Comeau won't work under SAS/C. In SAS's defense, some of these programs are buggy, but they happen to work under Comeau.

RECOMMENDATIONS

If you are already a registered user of an earlier version of SAS/C, you should have received notice of the upgrade, along with a description of the enhancements. You can use that to decide whether the upgrade is worthwhile. If you are planning to do any professional work in C on the Amiga, you should have the current version of SAS/C. If you are thinking about learning C or are already using C as a hobby, you'll have to decide whether you can afford the tool used by the pros or simply use one of the freely redistributable compilers available in the public domain.

If you want to fiddle with C++ and don't mind the growing pains that sometimes accompany new products, you'll be satified with 6.50. It's likely to improve as your demands grow, and SAS's commitment is clear—it has a member on the ANSI C++ committee. If you want to do serious work with C++ now, however, I suggest that you purchase Comeau C++ in addition to SAS/C 6.50. Freely distributable patches continually appear on networks, and these should address many of the problems I encountered. ■

—Dale L. Larson

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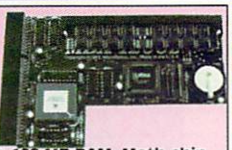
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The Game Preserve

By Peter Olafson, AW Games Editor

LIBERATION

A–	CD32 ✓ A1200 – Other Amigas –

CONVENTIONAL WISDOM suggests a perpetual stand-off between software publishers and new hardware developers. The former typically won't publish hot new games for the latter without a significant installed base. And said base is unlikely to develop in the absence of hot new games.

If this were entirely true, of course, no game machine would ever survive its infancy. Eventually, a forward-thinking publisher sees the potential of the technology and sponsors a game that helps generate a market. Hence, in 1985–86, games like Sundog and Dungeon Master helped get the Atari ST out of the blocks. In 1987, Dragon's Lair was probably single-handedly responsible for selling thousands of A500s. And in 1990, Wing Commander was in large part responsible for the development of a 386 games market.

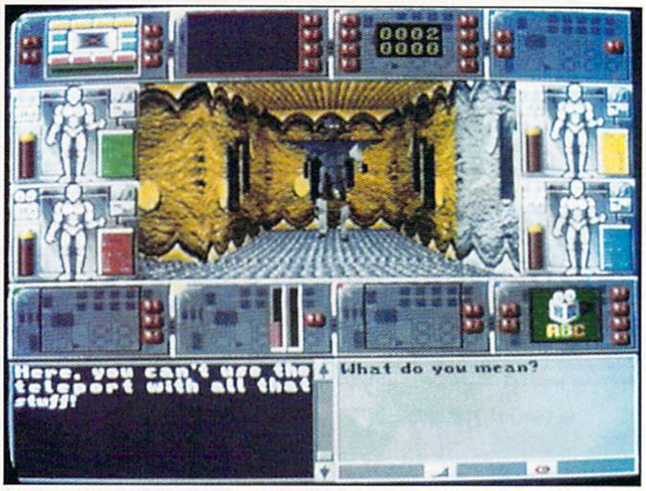
Until now, the CD32 hasn't had such a game. Oscar and Diggers—the games initially packaged with the machine in Europe—were lukewarm rather than hot, and the current Dangerous Streets/Wing Commander bundle offers nothing unique to the CD32. Too many of the games released for the new console have been platformers, which often look nice but push neither the machine nor our expectations.

Well, prepare to have your expectations pushed: **Liberation** (***Mindscape UK***, about $45) may well be the CD32's Dragon's Lair. Designed expressly for CBM's new console (and likely to remain CD32-only for some time), this vast futuristic role-player—a sequel to the celebrated Captive—is the first game that takes genuine advantage of the machine's abilities. If there's an adventure that will compel people to buy the CD32 simply to play it, this is it.

You may remember Captive. That Tony Crowther creation was among the first Dungeon Master clones when it appeared in 1990 and was instantly embraced by an audience starved for tunnels, monsters, and insidious puzzles. They left fat with them if they left at all. (Captive had something like 64,000 levels.) The only problem was that the docs were shorter than Ross Perot behind a podium—a situation rectified this time with a solid 64-page manual.

The premise (touched upon in a lengthy and excellent animated intro) once again has you controlling four droids—this time in an effort to release innocent people framed for murders committed by security droids-gone-haywire.

And the size will be familiar as well. It's a monster. Liberation is a Frontier among RPGs. You can't even begin to imagine the far edge. There are almost 4100 missions spread across its life-sized 3-D cities, which are rendered in a gorgeous pastiche of bitmapped walls—BladeRunner there, marbled here, art-deco there, shelves over there—and interior detail. You move about in a style similar to Space Hulk's hybrid of square-to-square shuffle and smooth scroll. While it doesn't have the freedom of action of the latter, when you get going at a good clip in a straight line, you won't know the difference.



It's every droid for itself in the futuristic world of Liberation.

The other characters—thousands of them—move smoothly as well. They all talk, too, in digitized human voices, sometimes in tones and terms none too flattering—my droids were called "drekhead" an awful lot—and sometimes at great length and to little point. (Reportedly, there are six hours of speech buried in the game.)

The initial challenge here may be getting used to an RPG that isn't a one-way street. This is a dark world well supplied in directions to follow, taxis to grab, signs of all description, and operating computer terminals. I've only touched on a few of its major facets, and part of its charm is discovering the minor ones: reconfigurable screens (you can customize your display), onscreen mapping, or the ability to look in any odd-angled direction in which you can't turn.

Liberation has weaknesses, to be sure. Too many characters look like extras from a sillier-than-usual *Lost in Space* episode: polygonal gowns topped with animal-like heads. Despite that vast pool of digitized speech, the NPCs (non-player characters) have a tendency to undergo accent and gender changes, which doesn't do much for continuity. The 3-D view is very crisp, but some of the supporting graphics are a bit muddy.

And the interface isn't really suited to the CD32's button- ►

A—Wow! Exquisite. A must for your games library. **C—Meets expectations. Good, solid, performer.**
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oriented controller, which makes things slow and cumbersome; you really need a mouse to get the most out of the game.

So get a mouse, already. In fact, get two. Chances are you'll wear the first out before you finish with Liberation.

Cannon Fodder

A
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Theatre of Death

B
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

CHEMISTRY IS EVERYTHING. It weds beauty to beast. It's the fizzy froth between baking soda and vinegar. It makes one game king, and its absence sends the other to the chopping block.

Consider the case of **Cannon Fodder** (*Virgin UK*, about $35) and **Theatre of Death** (*Psygnosis UK*, about $35). Cannon Fodder has that chemistry, and one day it's bound to be counted among Amiga classics; its special status is written on its brow almost from the moment this arcade wargame takes the screen.

And Theatre of Death...well, it doesn't. Despite being very much the same sort of game, and even superior in some respects—not to mention arriving a few weeks earlier—it lacks the charged atmosphere and the happy self-awareness of Cannon Fodder.

At the root, the two games are similar: You tool about large battlefields seen from an angled-down view, using the mouse to target—and open fire upon—enemy soldiers about the size of Lemmings (or, more to the point in Cannon Fodder's case, Sensible Soccer players). Once the mission's accomplished, you move onto the next level—in TOD with a whole new crew, and in Cannon Fodder with only those men who survived the earlier levels.

In Cannon Fodder the campaign element and the Big Picture thinking it requires is a decidedly Lemmings II-like concept, and developer Sensible Software has drawn on that Psygnosis game in subtle ways without ever sacrificing the originality of its own project. With a little shriek, casualties arch through the air as though attached to a rocket. Cannon Fodder has an exquisite difficulty curve that makes you sweep through the easier missions—effectively snaring you—and persuades you that sheer obstinacy is keeping you stuck in the more difficult ones. And the maze-like levels and enemy ingenuity and camouflage hold many surprises; there's nothing as treacherous as searching the deep recesses of a forest or the farthest ice flows for that last packet of holdouts.

Cannon Fodder is also much spiffier graphically; it's like a Lemmings landscape seen from a helicopter. Theatre is olive drab next to these stars and bars, but I found it a quicker play. The turnaround time between missions is far shorter—Cannon Fodder doesn't permit ready loading of saved games—and the reinforcements, tanks, personnel carriers, land mines, and air strikes give the game more variety.

On the other hand, while Cannon Fodder's play is very nearly spit-shine perfect, Theatre of Death's appears at roll call with sleep crusting its eyes and shirt tail out. It's a sloppy Joe: You can play the second part of one two-part mission before completing the first. Mission descriptions intended to be terse come off as just messy—"Rescue and neutralize enemies"—and supplies sometimes are placed in inaccessible positions at screen borders. When moving troops, the screen scrolls freely only to a point—you'll think you've reached the edge of the playfield—and you'll have to use the satellite views to center the perspective before you can continue.

But you can work within these constraints, and you'll want to, because Theatre of Death is essentially a good game. It's just lost in the huge shadow of Cannon Fodder.

AW Shucks!

In the review of Combat Air Patrol (Feb. '93) we incorrectly stated that the game's rotating point-of-view feature was a first for the Amiga. Actually, it first appeared as mouse-panning in Jaeger Software's Fighter Duel.

SHORT TAKES

Stardust

A
1.3 ✓*
2.0 ✓*
3.0 ✓*
Not hard-drive installable.
Copy-protection.

Wow. No, let me try that again. WOW. No, that still doesn't quite say it. Can we roll a bigger typeface in here? W-O-W.

Asteroids was never remotely like this. Hell, even Blasteroids was never like this. Stardust ($49.95) is an eye-popping shooter from new Finnish developers *Bloodhouse* that transports the basic Asteroids premise into a new realm of...well, blowing up big rocks and avoiding the debris.

But those rocks now look like whole cliff faces as they come tumbling towards you in almost photo-realistic detail, and they detonate with an unnerving propane-fed realism. Between levels of glorious gravel-making is the fastest, break-through-the-screen-daunting 3-D action sequence I've seen on any game machine to date. (Way to ride that hardware, boys.)

On occasion, you'll also be offered an optional special mission to pick up extra lives. Imagine a more-than-usually-difficult version of Thrust with close-set walls, parallax scrolling, and a seething purple stew in the background, and you'll have a rough idea what it's like.

And here's the kicker: All this runs just fine on a 68000-based A500 with a meg of chip RAM. (The only trouble I had was getting it to run on an '030-based A500 or A3000, though it worked fine on an '030 A1200.) A1200 and CD32-specific versions are in the works, but I can't imagine how they'll improve on this.

Dream Weaver

A–
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable.
No copy-protection.

Lots of ways exist to create do-it-yourself adventures on the Amiga, but very few ways allow you to do it so easily, without going through some semblance of <shudder> programming.

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MORE SHORT TAKES

urable gamemakers. It can accommodate up to 1,200 rooms on 10 levels—far more than anyone's likely to use—with no limit on the number of objects, and you'll be pleasantly surprised at the thoughtful features included and the ease with which they're put to use.

The only potential snag—aside from a somewhat too brief 20-page manual—is that DW isn't open-ended. That is, the game you create is distinctly a Dream Weaver game, with that system's general configuration and requirements. However, that's no great loss, as it's a very nice system, and if you're just starting out, it's probably not even an issue. This Dream Weaver will get even a novice through the night.

QWAK

A–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable. Copy-protection.

Team 17 returns to greatness with this exquisite Bubble Bobble clone after a couple of so-so releases. Qwak (about $20) is the old grab-all-the-keys-and-points-you-can-and-then-scoot static-screen platformer last seen to best advantage in Rainbow Islands, and it's in all respects just ducky (Including an obvious one: It has ducks in the featured roles). It's also wonderfully appointed in sounds and tunes, has a textbook two-player mode, and whisks along at a great pace. Playability at its zenith. (I especially like the bit where players trigger an avalanche of huge pieces of fruit—and not a few spikey mines.)

CHRISTMAS LEMMINGS

B–
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable. No copy-protection.

It has been a pleasant *Psygnosis* custom, since 1991, to release annual Lemmings Christmas disks as a little present to their fans. Part-demo and part-collector's item, these four-level mini-Lemmings were a charming way to reacquaint yourself with the little guys just when you thought you'd heard your last "Oh, no!"

Something changed last year: The Lemmings Christmas disk suddenly went bigtime. It's gained 28 levels (for a total of 32, all new), acquired a pricetag (a budget $29.95) and two tiers of difficulty (flurry and blizzard), and turned into a bona fide Psygnosis product.

Otherwise, this is very much The Same Old Thing. The Lems, green hair invisible beneath little Santa Claus caps, get slaughtered and saved while trekking across progressively more treacherous arctic landscapes hung with colored lights and populated with gingerbread-like houses, waggling dolls-on-a-stick, and bounding snowmen. The rescuing is as fun as it ever was, and one can't really hold it against Psygnosis for trying to make a little seasonal dosh off its best-known characters.

However, fun as it may be, if they were determined to charge us for the pleasure, they might at least have brought the Lemmings up to date. Despite having released Lemmings II within the last year, with its winter skills obvious candidates for inclusion here, Psygnosis has nevertheless gone back to the original 1991-92 Lemmings data set for these levels. Guess that was the easier route, but the winter setting here adds zip to gameplay, and this is basically Oh No!, once more.

DEEP CORE

C–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable. Copy-protection.

This Psygnosis-like big-sprite platformer (*ICE*, about $35) is lovely to look at. (Come on in, the water effect is great.) I'd hang it on my wall without hesitation. But, I probably won't put this mixed bag in my Amiga again soon.

For one thing, as in games like The Plague and Under Pressure, the character is a little too large for the allotted space and thus winds up inevitably and unfairly getting hit by unfriendly fire he should by rights have been able to avoid. The scrolling occasionally compensates for its general smoothness with sudden shuddering updates. And was this a sideways-scrolling shooter in a previous life? The oblong structure and floating enemies suggest so.

BLOB

A–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable. Copy-protection.

Wonderful game. Blob (Core Design, distributed by *EID*; $49.95) gives you control over a bouncy little blue sphere trying to escape from a collection of ragged levels by collecting objects, throwing switches and so on. Before you tune out, here's the rub: The levels are viewed from the top down and when Blob jumps to those above or plummets to one below, we're treated to a neat 3-D effect of nearby levels gradually materializing out of or vanishing into the murk.

It's a superb hook, and lends a new dimension of cautious steering and quick reflexes to the puzzles. (If you fall, you may still be able to direct yourself to a lower platform. And if you hit a tile too hard too many times, it'll give way.)

Some may find Blob's PacMan-after-the-Bomb approach spare compared to its competition, but I suspect that's a concession necessary to the game's speed. For my own part, I could have wished for a more original character than another little airball-with-eyes in the wake of Putty and Morph. But I suppose a blob by any other name is still a blob. And I wouldn't be making these excuses unless I was good and hooked.

HUCKLEBERRY HOUND IN HOLLYWOOD CAPERS

F
1.3 ✓
2.0 –
3.0 –
Not hard-drive installable. No copy-protection.

This budget platformer (*Alternative*, about $15) finds the slow-talking, pale-blue hound on the trail of stolen diamonds. The graphics starve from hunger, there's no digitized sound from the cartoons—which would have given the character a little character—and the animation is pathetic. (When Huck jumps, he revolves in place.) I don't know whether to rate it—or scrape it off my shoe.

DOGFIGHT

C
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable. Off-disk copy-protection.

Well, I reckon it's better than B-17. Dogfight (*MicroProse UK*, about $45) is an efficient and to-the-point air combat simulator—a conversion of Air Duel from the IBM—that allows you to fight it out without all the preliminaries of having to take off, search for, and fly to an opponent.

It's serviceable but rather barracks-like in construction—sort of an abridged version of one of MPS's full-fledged sims—except for the ability to pit planes from three different eras against one another in "what if" scenarios.

However, I'm not really sure what the point of that is, except possibly for handicapping bouts between opponents of unequal standing. In my experience these matches tend to be flagrant mismatches from the get-go.

And, unbelievably, they left out modem play. How can you convert a game called Dogfight and leave out the modem play?

To locate vendors of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 90.

AGAMES

ALIEN BREED II

B+ CD32 planned. A1200 ✓ Other Amigas ✓ Hard-drive installable. * Copy-protection.

Alien Breed II (*Team 17*, about $35) is to Alien Breed what Aliens was to Alien: bigger, badder—and not necessarily better.

The original Breed was a hothouse take-off of meatgrinders like Into the Eagle's Nest, where you progressed through levels of an alien-infested base burning down those little black forklifts and collecting first aid kits, ammo, and cash to buy weapons and equipment at computer consoles. Same story here, except this one opens out of doors (like Aliens), throws more beasties and powerups at you, and adds an automapping feature.

But this time it all feels unnecessarily crowded—it has little of the original's quietly lurking atmosphere—and I always felt in a rush. It's not hard-disk installable out of the box. (An installer is available directly from the publisher or via the Internet.) The "alien" on the box cover looks more like a toothy donkey. And the included freebie game —the shoot-'em-up Apache (also packaged with Body Blows Galactica)—can be charitably described as a mistake.

This is a good game, with some wicked levels and exceptional artwork, but it lacks the freshness of the original.

OVERKILL AND LUNAR-C

D CD32 ✓ A1200 ✓ (Overkill only) Other Amigas –

Overkill for CD32 (*Mindscape UK*) hasn't changed appreciably from its original floppy release. It's still a nice-looking Defender clone that's a little too hard a little too early on. And on reflection, it also seems to me that the incremental improvements here are unlikely to impress devotees of earlier Defender clones like Starray, Anarchy, Datastorm, and the innumerable PD offerings.

The new game in this two-fer—and the real reason I'm bothering with it—is Lunar-C. Um, maybe I shouldn't have bothered; "new" may be a misnomer. This sideways shooter is dated 1993, but it could have surfaced in the public domain in Europe anytime over the last four years. The main sprite looks like a flat cupcake with a police light. The collision detection is suspect and the enemies arrive in idiot patterns. All you have to do is keep firing. It's in PAL, so a hefty chunk of the screen is missing. And if this is AGA, I'm Margaret Thatcher. Sheesh. Anybody want to play with my new shiny frisbee?

OSCAR

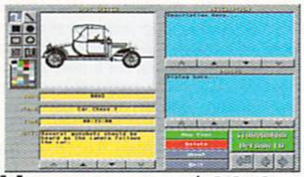
B CD32 ✓ A1200 ✓ Other Amigas – Not hard-drive installable. Off-disk Copy-protection.

Some reviewers have treated this Trolls-like platformer (*Flair*, about $35) more like the baloney than the gold statuette, but I like the little guy; he may be better competition for Sonic than I had originally anticipated.

Once again, a game from the original European CD32 bundle—it's now Wing Commander and Dangerous Streets—fares better on the A1200 than on the console. And, again, it's in good part due to a more sensitive controller (joystick). Better control, in turn, buys you that much more time to savor the luscious AGA environments in which the little fellow—what is he, anyway?—has been plunked down.

And that's neglecting the gameplay, which, between red elephants, lucky rabbits, film canisters, yo-yos, specials, and bonus and bogus levels, adds up to one nice platformer for the young at heart. ■

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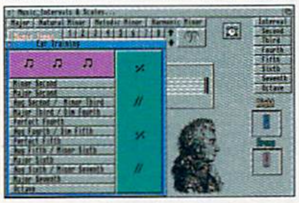
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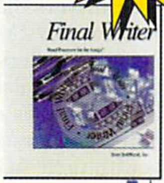
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HELP KEY

It's difficult to stump Tim "the scan man" Walsh when it comes to questions about scanners, printers, or monitors.

By Tim Walsh

Pan or Scan?

Q. *I need to digitize a large number of photographs, ranging from wallet-size 2x3 inches to full-size 8x10 inches. I'm trying to choose between an industrial, 3-chip, 700-line video camera coupled with the Opal-Vision framegrabber device or a Sharp JX-610 flatbed scanner.*

The cost of the two systems is similar, and I could use the camera's macro zoom lens to frame the photograph. Which is a better investment?

Gordon Enns
Grande Prairie, Alberta, Canada

A. Video cameras have been successfully used by many professionals and hobbyists over the years in conjunction with various digitizers to produce a variety of computer graphics. If this becomes an on-going project, consider the time factor (it's a slow process) and who's going to view or use the finished product. A camcorder/digitizer combination is a suitable substitute for a scanner if you're going to digitize the photos for use in a community newsletter, a school paper, or some other non-discriminating audience.

However, preparing photographs for business or professional publishing on a regular basis easily justifies purchasing a scanner. I fancy myself a scanner enthusiast of sorts, and find the art one of the most intriguing and rewarding uses for a computer. Moreover, Amigas are particularly adept at moving the signals faster than most PCs and Macs, making them ideal candidates for scanning. A wide variety of reasonably priced units that range from 300 to 2400 dpi (dots-per-inch) resolution makes shopping easy.

For professional scanning, some preparation is in order. Foremost is the scanner itself, followed by lots of RAM (the A3000 system I use for scanning has 82MB fast RAM, which occasionally proves inadequate for large, 24-bit hi-res scans). You'll also need the necessary software to control the scanner.

ASDG makes a range of scanner-controlling software, including a JX "loader" for Art Department Professional, which is actually a full-featured driver for Sharp scanners. Image-processing software is also needed for manipulating, cropping, and converting scanned images. Add to the list a 24-bit graphics card or an A4000 to accurately display your scans. Finally, there's the necessary IEEE-488 cable and an additional GPIB (General Purpose Instrument Bus) card, which is needed for use with Sharp scanners, such as the JX-610.

With all the pieces in place, you'll be able to scan in images that match the quality of the "photographs" found in the pages of *AmigaWorld*, some of which are images we produce with a Sharp JX-series scanner and most of the items listed above.

Color Me KX

Q. *I purchased a Panasonic KX-P2123 dot-matrix printer equipped with a color kit at an attractive price. The accompanying printer software is PC-specific, and not what I need for my Amiga. Consequently, the printer works fine in monochrome mode, but doesn't produce any color output.*

My dealer says any EpsonQ printer driver should work, but none did. I'm frustrated because I can't afford to buy a better color printer, but I want to print DeluxePaint images.

Jack R. Levey
Chicago, Illinois

A. Sounds like you're a candidate for PanaPref 1.1, a little-publicized utility that gives owners of newer Panasonic printers full control over all features of their dot-matrix color printers. Written by Wolf Faust, the author of the commercial program Printer Studio (MacroSystemUS), PanaPref is a powerful set of programs that gives you a couple of Workbench control panels designed specifically for setting color modes, t[...]olors, and even color separati[...]

The freely d[...]utable file is difficult to locate, a[...]s of this writing, is available solely[...]CompuServe in the Amiga User fo[...]f you have an account, or kn[...]neone who does, the file resides [...]rary 10 under the filename PANA[...]MS. The .DMS extension den[...]e file is a Disk Masher file, wh[...]eans you'll need a DMS decompre[...]tility and a blank floppy disk to de[...]ress the file.

Monito[...]on

Q. *I currently own a M[...]d Scan multisync monitor w[...] BNC, TTL, and analog RGB [...] It works fine with my A500. Whe[...] ed to my A1200, however, moving [...] lines appear in the advanced modes, su[...] Productivity, DBLNTSC, and so on. Can [...] use a Super-VGA monitor, or should I get a standard VGA monitor?*

Andreas R. Sheriff
US Navy

A. When I experimented with the A1200 and an S-VGA monitor about a year ago, I was mildly surprised at how well the colors and resolution appeared. While I primarily use the "DBLNTSC-no flicker" mode on AGA computers, I vaguely recall that several other modes didn't display too well, if at all.

A freely distributable remedy called MONED by Raul A. Sobon was released late in '93. This Workbench-based program is easy to use—you edit the monitor drivers that reside in your AmigaDOS 3.0 Devs:Monitors drawer using a series of sliders on a Workbench interface. Available on most networks, MONED is a must-have for anyone interested in using PC-type monitors with their AGA machines. ■

*If you're having problems with your Amiga, write to Help Key, c/o **AmigaWorld**, 80 Elm St., Peterborough, NH, 03458.*

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WB138: 3.0 Extras #2 - Another disk chocked full of utilities to unleash the power of Workbench 3.0 and AGA!!
WB137: The ARexx Guide - Full AmigaGuide (inc.) document to teach you ARexx!!! Tip-filled with easy x-referencing!
WB136: Terminus - WB2.0+ Modem/Terminal program. full featured: scripts/screenmodes/overscan etc.
WB135: 3.0 Extras #1 - 13+ utilities for WB 3.0. Several must-haves for getting the most out of your new graphics modes!
WB134: 3.0/AGA Blanker - BlitzBlanker for WB3.0+ 14 different blankers to really show off your AGA machine!
WB133: Panasonic Studio - Special printer Preferences editor and driver system for all Panasonic 9 & 24-pin printers.
WB132: Canon Studio Version 2 - Special printer Preferences editor and drivers for BJC 600, 800 & 880, LBP, A1, A2, BJC 800, BJ 5, 10, 20, 200, 230, 300, 130.
FD93: MegaBall AGA - This is the one you've been waiting for! Updated to knock your socks off! THE best p/d game for the Amiga. Req.'s WB2+ & 1MB RAM. Show off that AGA!
FD92: Blast'em - contains Scorched Tanks--a tank battle with futuristic weapons/defenses & "great" graphics. Galactoid is a Galaxian/Space Invaders game completely Amiga-tized.
FD91: Popeye - A clone of the original C-64 classic--Amiga style with enhanced graphics. Requires 1MB chip RAM for PAL mode.
FD90: Conquest & Dominion - Conquer the known world and maintain dominion over it--a microcosm of economic survival.
FD89: Kastle Kumquat - A thoroughly entertaining and challenging maze/adventure game. Great soundtrack and graphics. Req's 1MB Chip RAM (for PAL mode).
FD88: AmyBoulderdash - a clone of the original classic.. extremely well done complete with level editor, 2 complete sets of levels and a level editor. Requires Workbench 2+.
FD87: OXYD- A commercial quality game--similar to Marble Madness in nany ways, but allows two computers to link & play together...see how many of the 200 landscapes you can complete without having to get the hint book!
FD86: UChess: The strongest playing Chess program available for the Amiga period. Req. 68030+, Workbench2+, 4MB RAM or more. Supports AGA (req. 8MB!)
DD92: Developer Contains the official Commodore developers kits for the AmigaGuide and Commodore Install Utilities...a must have for all serious developers.

FUN DISKS

FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: Pacman - This disk contains several pacman type games including; PacMan87, MazeMan and Zonix.
FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the 2nd release of this game. Great graphic interface. Play time several weeks!
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12AB: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains Monopoly, Dominoes, Paranoids, and others.

DD83: IBM - Not one, but *TWO* IBM emulators that will allow the running of MS-DOS software *with* Amiga programs!!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatible drives. Also, check out our PC-Task emulator on our DevWare Video page!

FD17: Educational Games - This disk includes several games for youngsters including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce; A game that simulates combat between two or more giant robots. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as frogger, and SBreakout the original breakout with more.
FD31: Games! - Air Traffic Control - a good ATC simulation, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrinth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD32: Flight Simulator - An instrument simulator for a DC10.
FD33: Arcade Games - Ffreddy a Mario Brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and Wetroids a wonderful version of asteroids with a hilarious twist.
FD38: Games - Cribbage Master - A great cribbage game and tutor. Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

WB105AB: Workbench 2+ Extras #2
This set contains the programs that should have been included with WB2+. These powerful utilities take full advantage of the many new capabilities that are available in Workbench 2+. Includes: Tool Manager - a wonderful utility to add programs to your TOOL menu, Virus Protection - Degrader, Icon - Enhances Workbench's "Show All" to display over 40 distinct icons for different types of files. Bitmap Font Editor, Screen Blankers - ala fractals and spliners and swarming bees! Requester Enhancers and CPUBlit. Two disk set, counts as two.

FD39A&B: Star Trek, The New Generation - This is a completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Excellent!!! Counts as two disks. Requires 512k
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.
FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores and addicting gameplay. Gravity Attack is a psychadelic trip through several different worlds—each different.
FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatible printer.
FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a *great* Dr. Mario clone. Enigma; is it a game or puzzle?
FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or be killed game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.
FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Req. 1 megabyte of memory.
FD67: Arcade - Includes Llamatron a well-done "Robotron" clone. Hate is a "terrific" Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!
FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.
FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound f/x.
FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!
FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—incredibly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory=Fat Agnus)
FD77: Arcade Series - Galaga'92 is a clone of the arcade game with several gameplay enhancements--with smooooth, sharp graphics, it's better than the original! Pharaohs Curse is a clone of the original C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game--conquer or be conquered!

THE AMIGAWORLD "BEST-OF" SET
FD85ABCD: AmigaWorld's Best - These four disks contain the *hottest* p/d games of '92! Includes Mother Lode, Moria, Minefield, Poing, Intruder Alert, Deluxe PacMan, Rocky and Super Artillery (see Dec. '92 AmigaWorld) Four disk set, counts as three.

FD81: SuperGames - Some of *the* best games--Donkey Kong is better than the original *with an extra level!* Frantic Freddie and TrailBlazer are both fast-paced arcade games. Mad Bomber is the classic game of "Kaboom" redone with an Amiga flare. All of these games are excellent!
FD82: Intrepid - In the Arctic ice, you control a tank on a mission to rescue hostages in this superbly crafted Amiga original.
FD84: Games! Deluxe PacMan is better than the original-- 20+ mazes, special "power-ups" with *oustanding* graphics. ThinkAmania is the classic game of concentration--with *beautifully* drawn HiRes images.

WORKBENCH DISKS

WB4:Telecommunication - This disk contains several excellent pd communication programs: Access 1.42, Comm 1.34 & Handshake 2.12a. See also WB102 & WB115.
WB5: Fonts #1- 35 bitmap fonts. Also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Fonts #2 - ShowFont allows you to quickly and painlessly view all 256 characters in a typical font. Includes large AmigaDos system fonts (many up to 56pts).
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes. trees, watches, tools, US and State maps, and more.
WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!
WB13AB: Printer Drivers and Generator - over 70 different drivers (including HP LaserJet 3 & 4!), also includes a printer-driver generator. Two disk set counts as two.
WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot, a 3-D mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map IFF image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere.
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.
WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.
WB35: 3D Graphics - This disk contains 3Fonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, World3d - a demo of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!
WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is a powerful full featured plotting package. Used by many colleges and universities. Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
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WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy Houser M.D", Cal - a calendar program, Magman - a database tailored for articles and publications.
WB57: Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenomorph.
WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
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WB119ABCDE: Font Set This collection contains over 100 typefaces for use with Professional Page/PageSetter 3+ or PageStream 2.1+. These fonts will output to any laser printer or dot-matrix printer with no jaggies, thanks to outline fonts. Very pro-looking. *5 disk set, counts as 4.*

WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.
WB82: Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, & Mechanix. 2 disks, counts as 1.
WB93: Workbench 1.3 Extras #2 Contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.
WB95: Checkbook Accountant 2.1 - Definitely commercial grade; we've seen many checkbook programs and this is the best. Full budgeting, transaction recording & report generation.
WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.
WB99: Lifestyles - Includes AGene—family tree program that tracks up to 600 people/marriages/etc. Landscape is a CAD program to create gardens/landscapes. Loom simulates an 8 harness loom; experiment with pattern design with instant feedback.
WB102: Telecommunications - Contains the programs NComm 2.0 and VT100-29B. Zmodem protocols, XPR protocol support, full VT100 emulation. NComm's script language is so powerful it can create a full-featured BBS system.
WB106: Home Manager - This is a great all-in-one address book with an autodialer/notepad/to-do list/appointment scheduler/home inventory database and phone number dialer.
WB108: OctaMED - This breakthrough program doubles your Amiga's sound capabilities from 4 channels to an ear-popping 8 channels! All the renound editing capabilities of MED plus 4 more channels! If you thought your Amiga sounded good before...you aint heard nuthin' yet!
WB109: VerseWise - Display, search and print The New Testament.
WB113: Sid II - Why pay 40 bucks for a directory utility, when this one will do it all plus much more! A truly professional-caliber program. Sid 1 was our best, now *completely* rewritten, Sid 2 will astound you.
WB114: Fonts #4 - Contains 36 bitmap system fonts.
WB115: Telecommunication - If you have AmigaDOS 2.04+ and a modem, then this is *THE* program for you. Term *totally* conforms to the User Interface Style Guide for 2.04, has an ARexx port, and supports all popular file-transfer protocols through XPR libraries. We wish all programs were this good.
WB116: Databases - This is what you've been waiting for! Contains 5 uniquely specialized database programs for tracking: Videotapes, CD's, Magazine Articles, Comic Books and Trading Cards!
WB120: Grinder - a complete graphics conversion package that supports GIF's, JPeg, Neochrome, Degas, PCX, Targa, TIFF, HAM-E and IFF format pictures. An invaluable tool for all desktop-videographers and desktop publishers.

WB118: Amiga Beginner - *You asked for it!* A complete tutorial for the beginner on using the Amiga. Starts you off at the power-switch and takes you through to the CLI/Shell and all points in between. *Bonus!* Also included are 16-color icons to replace *every* icon in your 2.0+ Workbench.

WB121: ProPage3/4 Enhancer - This disk contains over 40 "Genies" for use with ProPage 3+, including useful ones like Make Pie Chart and Resize Text to fit Box to name a few. Also includes structured & bitmap clipart for unique borders...a *must have* for all PPage 3 users.
WB122: System Optimizer - KCommodity enhances your system, gives memory meters, mouse/keyboard enhancements, online timers plus *many* others...too numerous to list! REorg will optimize hard and floppy-disks for a big speed increase. HDMem will allow you to use up to 2 megs of hard-drive space for virtual memory! (Req. 68020+ w/MMU) All programs require 2.0+.
WB123AB: Flags of the World - same as WB124, but for Workbench 1.3. Req. 1MB. 2 disk set, counts as two.
WB124: Flags of the World - Two modes: click and learn or a game to test your knowledge. Great graphics--fantastic learning tool. Has current Russia & Yugoslavia republics. Req. Workbench 2.0+ & 1MB RAM.
WB127: Blankers - Over 20 different screen blankers. Most run on Workbench 1.3+...a few require 2.0+
WB128: ColorFonts - contains 12 color bitmap fonts for use with DPaint or any software that supports ColorFonts.
WB129: Super Virus Killer - From Safe Hex Int'l, who catalogs and kills Amiga Viruses *worldwide*--a complete virus system that knows all Amiga viruses...updated often. Req. WB 2+
WB130: ToolManger 2 - The ultimate tool manager for your Workbench. Add animated icons, sound effects and 'docks' of programs to your WB..very useful! Req. 2.0+ and hard drive.
WB131: Magic Workbench - Make your 2.04+ Workbench sizzle with style with these 8-color dithered icons. Easy auto-installs in minutes. Req.'s WB2.04+ and hard drive.

DEV DISKS

DD54: Compression - This disk is loaded with all of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc, Lharc, Lhwarp, Pkax, PowerPacker a must have by all, Zip, Warp, and Zoo.
DD71AB: C Compiler - This disk contains DICE, Matthew Dillon's full featured, powerful C compiler & environment. 2 disks, counts as 2.
DD79abcd: Amiga "C" Tutorial - This is the most comprehensive C language--*Amiga oriented*--set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples for Amiga programming. 4 disk set, counts as 3.
DD86: The Programmer - Includes GadTools and REQTools which will allow you to create your user interfaces and then the program will automatically generate "C" source code or Assembly-code. Requires, and writes code for, AmigaDOS2+.
DD89: UEdit - Probably *the* most powerful text editor ever written for the Amiga. Previously commercial, now public domain. Req. 1 MB.
DD91: ParBench - Allows you to easily connect/network two Amigas/CDTVs together and share storage devices. Req's custom cable (docs to make cable included--easy).
DD90: Advanced Utilities - CompressDisk doubles the capacity of your hard-drive on the fly with compression!!! Also contains: disk optimizer, SCSI mount utility, Keymap editors, Enforcer, Undeleter & more. Most programs require 2.0+.

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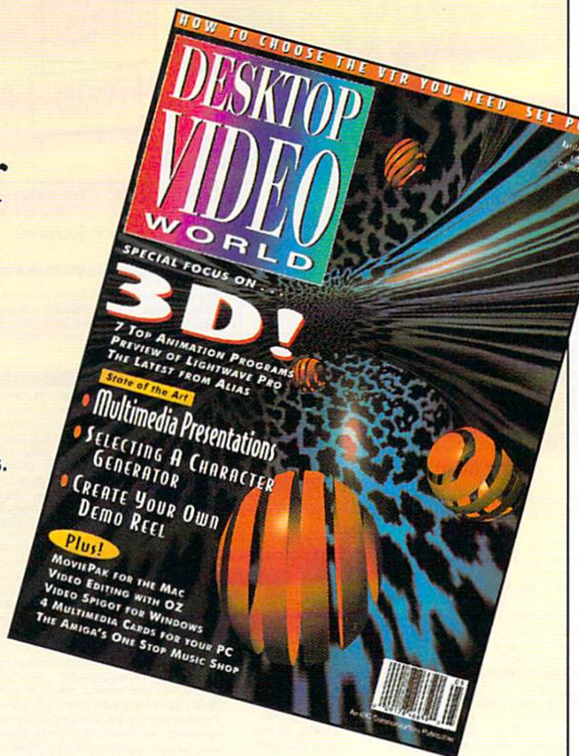
VO9: Imaging - Included on this disk are the indispensible utilities, Rend24, ViewTek and the JPEG utilities. Rend24 is invaluable for 24-bit animators allowing for previews on AGA and non-AGA Amigas. ViewTek plays back anims of all sorts including Anim 5, 7 and 8 formats. JPEG utilities facilitate the transforming of IFFs into space-saving JPEG format.

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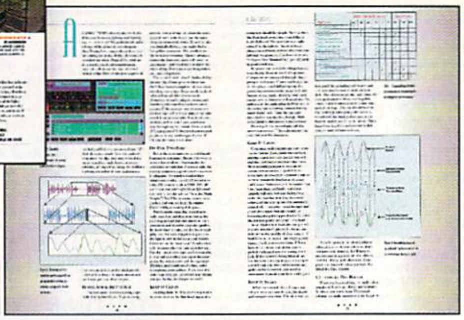
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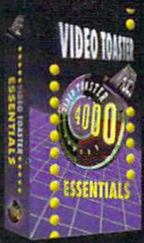
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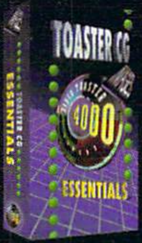
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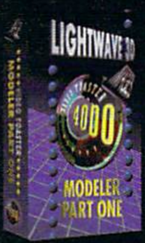
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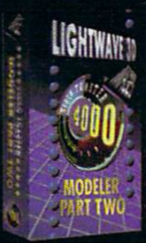
Discover the power of LightWave as basic 3D animation is explored. Learn scene creation, key framing, design and editing techniques for amazing animations.

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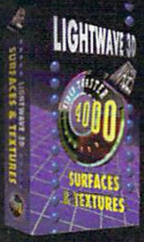
Create & modify basic shapes, making polygons with the freehand draw tool, using layers, creating text objects and assigning surfaces.

100 minutes



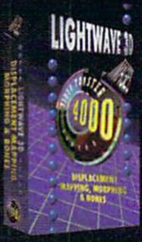
Change the shape and aspect of objects with modify tools, bending titles and logos, creating terrain using rail extrude, clone and lathe to create complex objects.

100 minutes



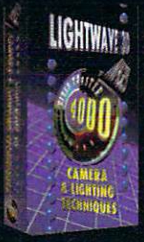
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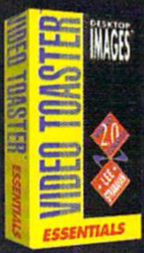
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An easy step-by-step guide to the Video Toaster's character generator, font and palette controls, text file loading, and ToasterPaint CG backgrounds.

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90 minutes



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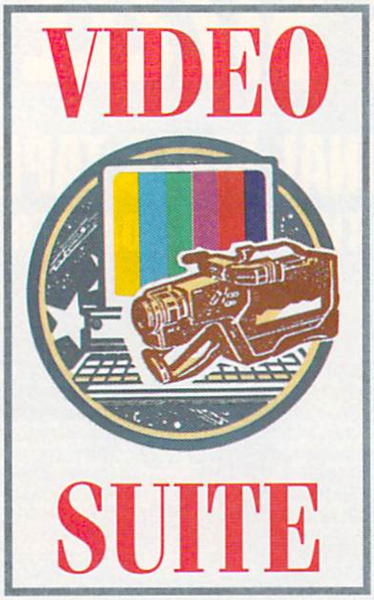
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Sound Quality PART 1

Here's what you need to know to make certain your production's audio quality is top-notch.

By Paulo de Andrade

MANY OF TODAY'S televisions sport high-quality stereo speakers. Some people even listen to TV sound through sophisticated stereo systems. Surprisingly, though, video producers frequently neglect the audio portion of their productions—as if image and sound were not married with a non-divorce clause!

TV networks, film studios, and advertising agencies know the importance of good sound. Pay close attention to the soundtrack of a national TV commercial and you'll see what I mean. Not only is the sound quality good, but it also feels very rich, sometimes overpowering the audio of the preceding program. Audio is an aspect of video production that deserves serious consideration.

Several elements are necessary for a good audio system (see the diagram, next page). Just connecting the sound outputs from your player VTR directly into the sound inputs of your edit deck may save you money, but it will also produce cheap-sounding audio. To get good results you must put together a well-balanced system, where each component does its job well. This need not cost a fortune; good audio gear has come down in price recently. This month and next, we'll discuss how to put together a sound system that will give your productions an edge over the competition's. The professional-level equipment mentioned is available through pro-video and -audio dealers.

Audio Monitors

The biggest audio-related mistake I see in post-production suites is improper speaker use. Speakers are an extremely important part of the audio chain. They are to sound what TV monitors are to video. If you use bad video monitors, your image will look lousy, no matter how good your VTRs are. Likewise, using bad speakers not only causes your audio to sound crummy, but the result will also lead you to make improper adjustments.

Unfortunately, the use of home speakers in the video suite is fairly common. Home speakers are usually designed to make your system sound good by emphasizing certain frequencies, especially the low ones that we know as bass. If you use such speakers, you will tend to compensate for the excessive bass by toning down the low frequencies. The result will not sound good on a regular TV set as the bass level will be too low.

Some expensive, high-quality home speakers have a very flat frequency response; that is, they don't emphasize any particular frequency. But even these are not appropriate. You need studio monitors—speakers specifically designed for recording studios.

Studio monitors, like their video counterparts, try to render the sound exactly as it is, with no artificial colors or flavors. They serve as excellent references for adjusting audio.

You can buy great studio monitors from professional companies such as JBL, Yamaha, and Electro-Voice. They come is several sizes and can cost as much as edit VTRs. But you don't need the most expensive ones for video production. Small to medium-size studio monitors will do fine, and a nice pair costs around $400. (Bear in mind that you probably would not hesitate to pay that much for a good video monitor!)

The Amplifier

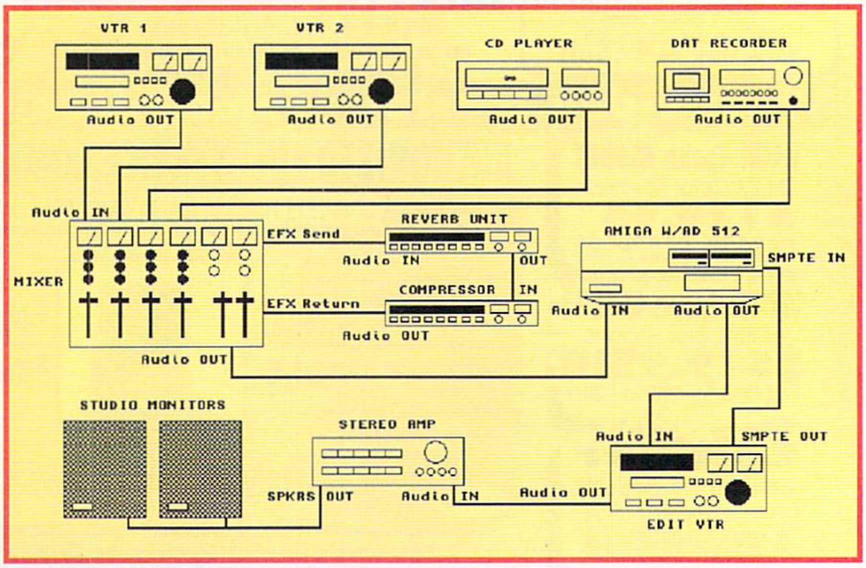
For the same reason you should avoid home speakers, using a household receiver as your studio amplifier is a no-no. Look for professional amplifiers that sound natural and do not emphasize some frequencies more than others.

The beauty of professional amplification gear is that you get a lot more for your money than you do with home equipment. Several home stereo systems actually use the same chips as AM radios, portable TVs, and inexpensive car stereos in order to save money for fancy displays. Manufacturers of professional amps, on the other hand, put money into what matters—quality components. A home stereo rated at 100 watts, for example, typically starts distorting sound after you set the volume control past the center position. Therefore, you are not getting all the power you were sold on. Pro amps offer very little distortion and you can usually crank the volume level almost all the way to the end. So, don't be surprised if a 60-watt professional amp sounds louder and better than a 200-watt home receiver.

Professional amps are not much more expensive than their home counterparts. Basically, all you need is an integrated amp, that is, one that has a pre-amplifier and a power-amplifier in a single unit. Or you can opt to buy separate units. A well-designed 20-watts-per-channel unit may be all you need. But if you like more power, or if your video suite is big, a good 50-watts-per-channel amp should be more than enough. There are several ►

manufacturers of professional sound amplifiers—too many to list—and finding a good one is easy. There are even some units designed specifically for video post production.

You should connect the amplifier to the outputs of your edit deck so that you can listen to what you are about to record as well as what you have recorded. Your VTR will dictate the number of audio channels you have available for production. MII and Betacam SP VTRs, for example, offer four independent audio channels. Super-VHS, 3/4-inch U-Matic, and VHS, on the other hand, offer basically two. If you are using linear SMPTE time code and your deck does not have a dedicated SMPTE track, you may end up with only one audio channel. It is because of these limitations that I strongly recommend a digital multitrack recorder. We will discuss that next month. For now, let's move on to audio sources.



The right equipment and the right connections for high-quality video sound.

CD and Cassette

A well-equipped video suite should include several audio-playback sources. A good CD player is essential as it enables you to play the music or sound effects you'll be adding to your production. (By the way, don't forget about copyright laws. Using commercial music in a production without paying royalties or obtaining authorization can get you into serious trouble. That's why buy-out music and sound-effects libraries are available.)

Most CD players offer very good sound quality, and this is an area where you can easily get away with consumer-grade equipment. If you can afford a pro-level CD player, however, you will gain professional audio connectors, special remote controls, and other features that make life easier.

Another common source of audio, the compact cassette, is usually not ideal for quality sound. Only the best cassette decks offer good frequency response and proper signal-to-noise ratio. But because audio cassettes are so common, consider having a good unit for compatibility. You should avoid recording narration on a cassette deck, however. Because the deck's speed tends to fluctuate a lot, unless you use the same unit for recording and playback, you may end up with longer or shorter times.

DAT's Right

DAT (Digital Audio Tape) has become the choice for professional distribution of high-quality audio. You should have one available if you want to provide your clients with the purest audio. It is perfect for recording narration, not only because of the exceptional sound quality but also because there is virtually no speed variation between machines. DAT offers excellent frequency response, outstanding dynamic range, and superior signal-to-noise ratios. Almost every professional recording studio today uses DAT, so having your own machine lets you share high-quality custom music or narration with industry pros.

Professional-level DAT recorders offer some very nice features, such as SMPTE time code and editing capabilities, but they are expensive. Consumer DAT gear should be of high enough quality for your studio. I particularly favor the portable DAT units. These operate on batteries and are extremely small and lightweight; most are the size of compact 35mm photo cameras. You can comfortably carry a portable DAT unit and microphone virtually anywhere. The tapes measure only a few inches and can record up to two hours in the highest quality modes and up to four hours with minimum degradation.

Other Audibles

While 1/4-inch (reel-to-reel) recorders used to be obligatory in well-equipped studios, they are being phased out by DAT as a means of audio distribution. You should invest in such a unit only if you receive a lot of material on reels or if you want to maintain compatibility with older (still abundant) material. I would not advise buying a new unit, but you can find used open-reel professional recorders in very good condition.

The Amiga itself can supply a variety of interesting sounds. You can easily connect its stereo outputs to your audio system. Many videographers use the Amiga to generate a 1 KHz tone for level reference together with color bars. (The shareware program Bars 'n' Tone does this for you.)

The Amiga can also be used in some cases as an electronic narrator; its "robotic" voice might spice up futuristic presentations, for example. Also, the Amiga's internal voices can be used to play music, although a board such as The Blue Ribbon SoundWorks' One-Stop Music Shop (which contains instruments and sound effects) delivers much better quality.

An inexpensive MIDI interface allows you to connect a variety of professional sound modules and synthesizers to your Amiga. One such module is the very popular Roland Sound Canvas. A virtual orchestra-in-a-box, it contains more than 300 first-rate instruments and sounds, including several sound effects.

Using MIDI-sequencing software such as Bars&Pipes Professional (Blue Ribbon) or Music-X (Hollyware), you can even assemble entire songs with several instrument tracks. This task, however, is best left for the musically gifted.

That's it for sources; next month we'll look at the other components in your audio-for-video chain. Plus, I'll offer a few tips on making your audio sound good on any TV set. ■

Paulo de Andrade is president of Digital Reality, an Amiga-based broadcast-video and 3-D animation company in Seattle.

Manufacturers'/Distributors' Addresses

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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

Reaching the Tower

I wish to continue my subscription because *AmigaWorld* is so involved in seeing that the Amiga continues to be a viable competitor in the computer market. Through your "Last Word" column, Amiga owners are able to express their views, which hopefully can reach the ivory tower of Amiga executives.

I also find *AmigaWorld* an excellent source of information to keep me posted on what is happening. You showcase the people who are responsible for the ongoing success of the Amiga, the programmers and developers. The articles cover just about every interest.

Philip Wayner
Euclid, Ohio

Hams for Amigas

There are many people using Amigas every day who don't play games, draw pictures, or create music videos. They're into productivity of a different nature, namely, using the Amiga for amateur radio. The Amiga is used as a terminal connected to a TNC (terminal node controller), which is a programmable modem connected to the radio. Over the amateur radio frequencies a variety of digital signals can be sent out. The type being used today are on Internet, known as TCPIP and Amiga NOS. There are many protocols—weather fax, full-color SSTV (slow scan TV), VGA color packets—and functions—such as accessing the satellites, moon bounce communication, AX-25 packet, networking and file transfer. Through all of these activities, the Amiga acts as the controller.

Lew Kuhn
Huron, OH

Way to Go!

Here in the UK, the CD32 is the hottest thing since sliced bread, with major retailers stocking the machine in hundreds of stores. I've observed that there are about 30 titles out already. But the surprise of the decade came when I found The Labyrinth of Time by Electronic Arts. I was shocked, since none of the magazines had previewed it, and I bought it to add to my collection of CD32 titles.

Please pass my congrats to the Big C for the CD32 and especially to Electronic Arts for the incredible show of support for the CD32.

Luis Reich
President, Amiga Users Group
RAF Alconbury, UK

Eds. Note: The Labyrinth of Time was a featured game review in the Sept. '93 issue (see "Game Preserve," p. 76). We can understand the confusion, however, because at that time the tentative title was simply "The Labyrinth." At present, it is only available in the US as an import from the UK division of Electronic Arts.

...in the UK, the CD32 is the hottest thing since sliced bread, with major retailers stocking the machine in hundreds of stores.

A Head Start

Your new Head2Head column is an excellent idea, and you should give a raise to whomever thought that one up. Direct comparisons between leading programs stiffen the competition and better products are the result. Don't make it occasional, though. You have 12 issues a year, so compare word processors, desktop publishing, 2-D paint and 3-D rendering on stock Amigas and add-on boards, BBS programs, telecommunications, databases, spreadsheets, and anything else you can think of. By the time the next year rolls around, it will be time to start reviewing all those areas all over again.

Todd Putnam
Travis AFB, CA

In regard to your Head2Head review (Jan. '94) comparing ProWrite and Final Copy, it's hard [to imagine that] any Amiga word processor [could] beat ProWrite (on a 68030+ machine). [In ProWrite] you can actually see the words on the screen. In the available keyboard-controlled cursor movement, document perusal, mouse or keyboard editing functions, ProWrite is very fast, very thoughfully laid out, stable, and flexible. Plus, you can use any old printer (including dot matrix) and its resident fonts to print the results handsomely. What's so great about having to print every single letter of every word graphically (which is what Final Copy does)? I don't get it.

Joseph K. Crabola
Santa Fe, NM

Get Down to Business

Recently I noticed that there are a few new business-related programs such as Invoice It!, Address It!, dataTAX '93, and others in some ads in your magazine. Couldn't *AmigaWorld* get off the games/graphics shelf and review these productivity programs, which nobody knows about but are usually looking for? For this reason, people are losing out on a great machine with the capabilities to blow away competitors.

Brian Wright
Snohomish, WA

Eds. Note: See May '93, p. 26, for a review of Address-It! and Oct '93, p. 62, for one of Invoice-It!; both from Legendary Design Technologies. Also, check out next month's review of the SBase 4 line from Oxxi. ■

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